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There's nothing more interesting to the modeler than the real thing, so conversely what should intrigue these race car drivers more than the miniature counterparts of their highly charged steeds? Artist Harold Stevenson, himself an air-speed modeler of no mean ability, shows that the gears are always greener on the other fellow's track.

air trails

JULY 1955 • VOL. 44, No. 4

HOBBIES for YOUNG MEN

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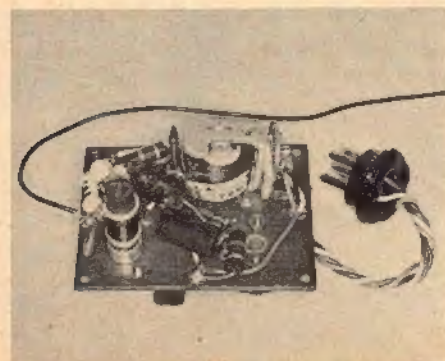
Editorial Offices Located at 304 E. 45th Street, New York 17, N. Y.



For those who've admired speed boating but feared complexities — see page 38.



Half the battle in air-model team racing is quick service; this box helps — see page 72.



Transistors have hit the radio control crowd hard! Even gas tubers — see page 48.

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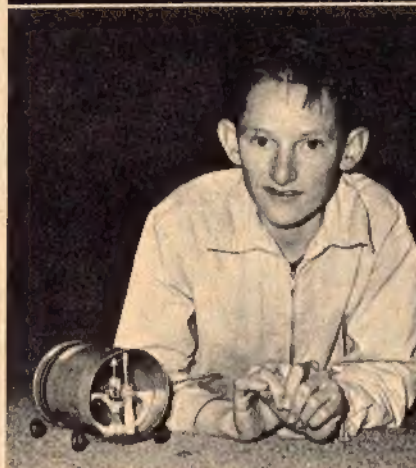
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Model Car News



Racing activity on the increase—a salute to some helpful souls—new “Hot,” “Lukewarm,” and “Cool” classes!

■ Hardly a month goes by but what we hear of at least one new car track going into use, or under construction. Sure looks like lots of increased activity among the model auto boys, and a big season ahead. The happy tidings this month come from Bill Gleason (1516 N.E. 7th St., Gainesville, Fla.) who has been doing a real job of getting a model club organized in his vicinity.

Gainesville is the home of the University of Florida and Bill feels there should be a lot of potential hobbyists among the student body. A meeting was held to which everyone interested in models—whether cars, planes or boats—was invited. Over 40 attended! Big question of the car boys was—what about a track? Bill has gone before the City Commission to present the problem, feels that things look very bright for construction of a cable track. Needless to say, he wants the support of everyone who has any interest in the hobby, so hopes residents of surrounding areas will get in touch with him. Incidentally, it looks likely that Bill's urging may also promote a field for control line model flying, as well as a pond for the boatmen.

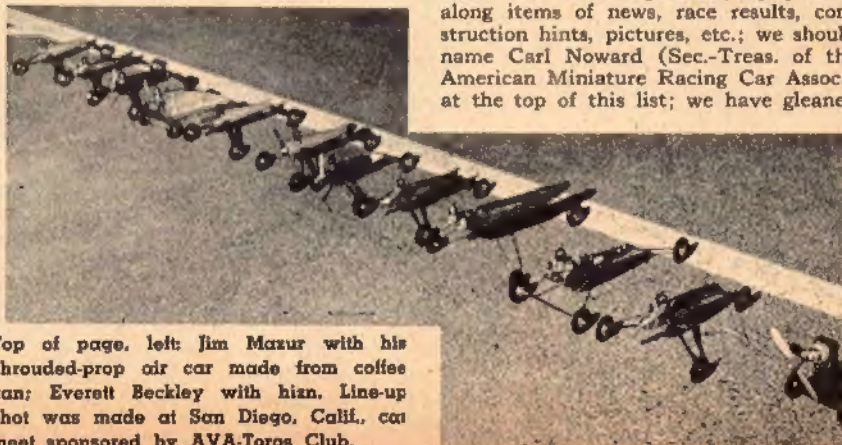
Word of another possible track comes from Franny Wolf (513 Vesta Pl., Reading, Pa.) who has been attempting to interest the city fathers of his city in such a civic project. He writes that the

Reading Hot Rods (a big car organization) has been after the city government to set up a drag strip, and that, too, has good chances of materializing.

And word of a new track now in operation comes from H. L. Burns, Jr. (809 13th, Dodge City, Kans.). He says that the local car club has about 25 members, and in view of the new track, quite a few of them are procuring new cars or building same. We don't know the name of this organization or any more of the details; H.L.: send more info on your activities.

This model car column has now been running in ATH for a little over a year. When it was first started, we got the distinct impression that model car running was at the lowest possible ebb. True, there were some active groups running all the time, but they seemed to be mainly composed of oldtimers; new clubs and new tracks were seldom heard from; in fact, we more often heard of tracks going to ruin through lack of use and maintenance.

It certainly seems, one year later, that the model car game is rapidly shifting into high again, and we like to feel that our promotion of it through ATH has been in some small part responsible. And just in passing, we would like to offer our sincere thanks to a very few devoted car men who have helped to make this column possible, by passing along items of news, race results, construction hints, pictures, etc.; we should name Carl Noward (Sec.-Treas. of the American Miniature Racing Car Assoc.) at the top of this list; we have gleaned



Top of page, left: Jim Mazur with his shrouded-prop air car made from coffee can; Everett Beckley with his. Line-up shot was made at San Diego, Calif., car meet sponsored by AVA-Toros Club.

many an interesting item from his AMRCA News Bulletin—and will probably continue to do so, since it seems almost impossible to get the individual race car enthusiasts and their clubs to write us direct.

Our heartfelt thanks also go to Franny Wolf, the Chrome specialist from Reading, Pa., and to Bob More, who also covered the Race Car Nationals for ATH in 1954. There have been a few others, but these three have undertaken to furnish most of the info we've given you; even though we know they will be glad to continue doing so, it doesn't seem fair that they should have to. How about some of you other active race car men dropping the fuel can and wrenches for a few moments, and shooting us a line?

From Carl Noward (as usual!) comes word that quite a few night races have been planned by the Ohio Cir-cut, as they have been found to bring out a lot of fellows who can't make the Sunday sessions. The Ohio group is sparked by Red Abraham (Cuyahoga Falls) who is the Secretary; this branch of racers will



Dick Macias with his super-finished "1234" Dooling-powered race car and the Percy Matthews Memorial Trophy which the pair captured. The late Mr. Matthews was a pioneer model car builder.

operate strictly under AMRCA rules in 1955, and will have a separate race class for those modelers who want to run the old Custom cars and others that won't go as fast as the present day crop of speedsters. Points will be awarded for all cars that run, and a Season Trophy will be presented to the man who has highest points in any one class. Points are set up so that the fellow coming in third will have only 30 less points than the first-placer, so that no one should get too far ahead in points.

There is also a "bargain package" to builders who enter more than one car at a race; if a contestant enters three cars, he can do so for five dollars, while it would cost him \$2.50 per car otherwise. This scheme was found to keep more cars running, when it was inaugurated last year. Carl hears frequently from Harold Cook (45 Chapel St., Chorley, Lancs., England) who would doubtless be happy to correspond with any

(Continued on page 71)

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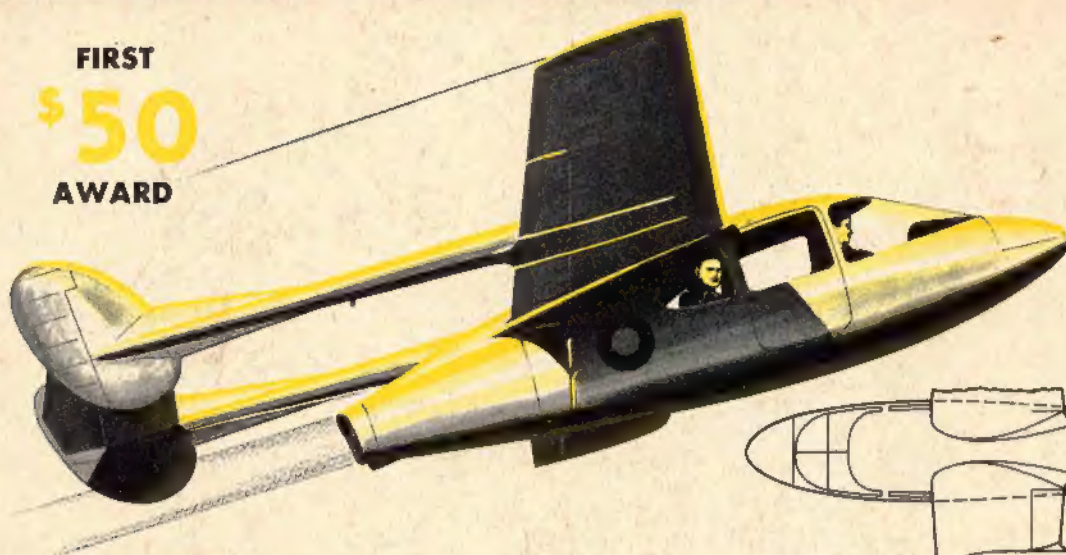
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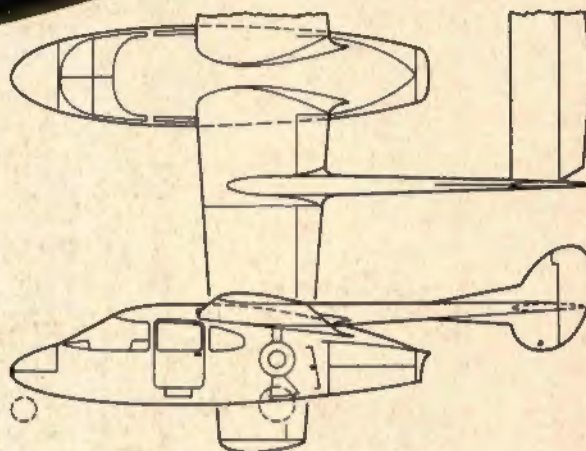
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Rocket-interceptor by John V. Sircom of Melbourne, Australia. Unusual feature is location of pilot in capsule atop of fuselage, permitting easy jettisoning, greater protection in event of belly landing, lighter and more rigid structure of fuselage as well as more space for fuel. Power is supplied by two chemical fluid rockets of 22,000 lbs. thrust each. Top speed 2500 mph.

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Sailplane-jet-trainer by Paul Austin Cheney of Rockville Center, N. Y. This craft can serve as either powered sailplane or a jet trainer with addition of a tricycle landing gear. However, with a span of 36.5 ft. and gross weight of 2100 lbs. it will make a better trainer than soarer. Powered by two engines developing a total of 950 lbs. thrust, the top speed is 350 mph.

Rules governing this "aircraft of the future" competition are as follows: Three-view sketches of the envisioned aircraft will be required. These should be not less than 8½ x 11 inches for the entire three views. Give sketches of the complete airplane or space craft in three-quarter front and rear positions. Photos of a model of the proposed design may be included: Informa-

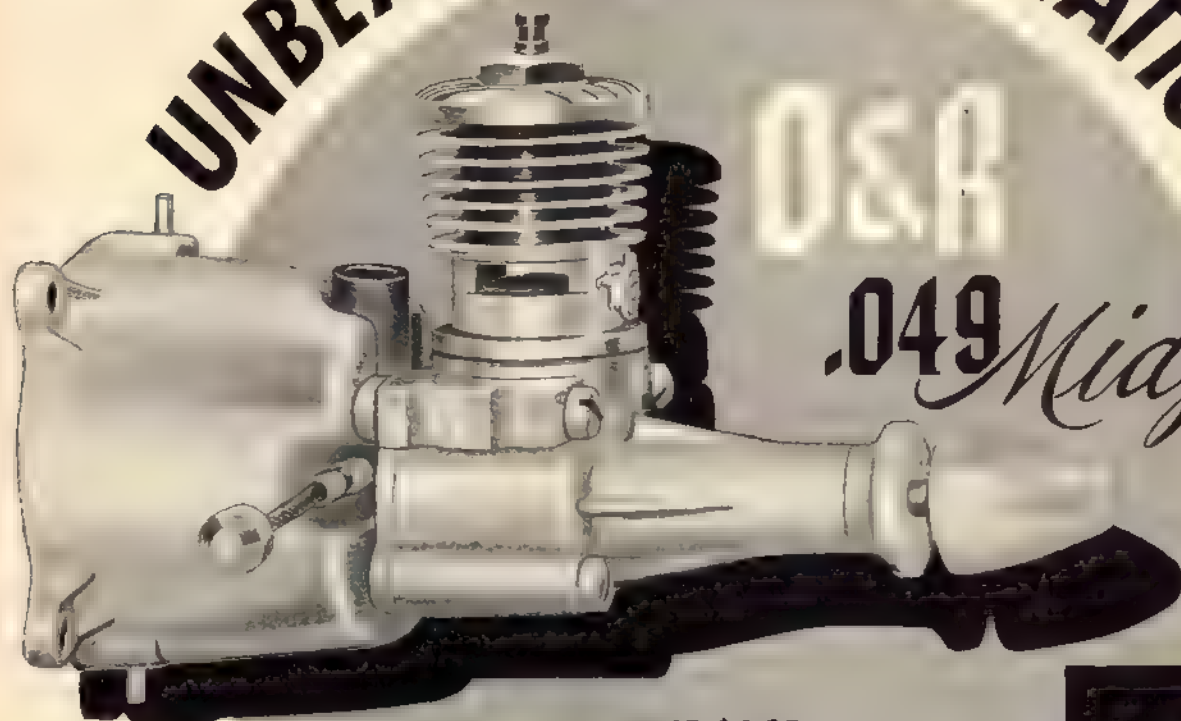
tion on the powerplant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The design may be of any type; space craft, commercial, military planes (fighters, bombers, troop transports), planes for the private flyer and sporting

or racing planes. The entry each month judged the most practical or of the greatest significance will receive an award of \$50; \$25 for second place and \$10 for third. Mail entries to Airmen of Vision, c/o Air Trails HOBBIES for Young Men, 304 E. 45th St., New York 17, N. Y. The editors regret they cannot enter into any correspondence on submissions.

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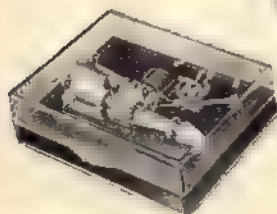
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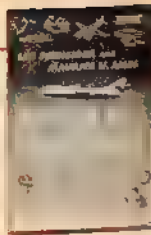
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The World's Fighting Planes by William Green and Gerald Pollinger (Hanover House, Garden City, L. I., N. Y., 240 pages—\$3.50) is an up-to-date aircraft recognition manual of the military planes of 18 nations.

Since aircraft spotting has become increasingly important, the authors have included all military planes currently "operational" as well as the newer designs that will soon make the present planes obsolete. There are more than 2401

This volume covers almost every plane with a photograph, a three-view identification silhouette (head-on, side and bottom plans) and a description which includes dimensions, speed, cruising range, armament, etc. Fighters, bomber, transports, trainers and helicopters from the world's combat air forces are described in lucid detail. Each country's planes are dealt with in alphabetical order.

This book is highly recommended for all air fans interested in the aircraft of the day.

The Observer's Book of Aircraft of William Green and Gerard Pollinger (Frederick Warne and Company, Inc., 210 Fifth Ave., New York 10, N.Y. 287 pages—\$1.25) might be described as a somewhat condensed version of "The World's Fighting Planes" with a few additions. Actually it was expressly designed for spotters and comes highly recommended by the British Aircraft Recognition Society.

The authors in compiling this book have often had to choose between the aircraft most widely seen and aircraft of the latest design. The latter were selected because they indicate the future patterns in aircraft shapes and many readers undoubtedly have previous editions of the Observer's Book.

For the novice ground observer the authors have included a system of distinguishing between aircraft shapes; also included are complete international civilian aircraft markings.

In this edition the planes are listed

both alphabetically (or numerically) by manufacturer and also by general appearance.

Included in this handbook are the vertical take-off craft, the Convair XFY-1 and the Lockheed XFY-1. The book is pocket size, well illustrated with photographs and silhouettes, making it an ideal guide volume for both the novice and the experienced aircraft spotter.

Wings in Your Future by Leo Schneider and Maurice Ames (Harcourt, Brace and Company, New York, N. Y., 151 pages—\$2.75) is a book about aviation written specifically for young people.

The first chapters of this volume deal with the properties of air and the principles of flight. Simple experiments easily carried out at home explain many of the mysteries encountered in aerodynamics. While reading this book it is suggested that the experiments be carried out for the discussion of such subjects as jet propulsion and torque, and its meaning in helicopter flying will be fully understood.

Following these experiments is a chapter on commercial flying. Here the authors take the reader on a flight; the excitement of a ground-controlled approach is not easily forgotten. This has been covered not only from the pilot's seat but the reader is put in the control tower and gets the thrill of standing in front of the "scope," too.

The last chapter deals with the problems of rocket travel which is coming closer to reality each day.

Scale Model Ships—Their Engines and Construction by Bernard Reeve and P. W. Thomas (The MacMillan Company, 60 Fifth Avenue, New York 11, N.Y., 284 pages—\$4.00) is a practical manual on scale model ship construction and suitable powerplants.

The authors have described step-by-step and in minute detail every aspect of scale construction and design, plus the building of powerplants, as well as the tools, material and equipment that

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will be needed. Although written in England and containing many British terms and material sizes, no difficulty should be met by the serious model boat maker who will hail this book as a real find.

Turbine & Jet-Propelled Aircraft Powerplants by James P. Eames (Chartwell House, Inc., 280 Madison Avenue, New York, N.Y., 237 pages—\$5.25) is a detailed explanation of the newest means of aircraft propulsion.

Starting with the very basic principles of reactive propulsion, describes in detail each of the four categories of jet powerplants. compressionless jet, turbojet, turboprop and propjets and the newer rocket jet powerplant. With each have come new service problems and new standards in evaluating the serviceability of each integral part. After taking into consideration the basic problems of dirt, heat and motion the reader realizes that the jet—although simple in design and requiring about one fifth the number of tools used in servicing the reciprocal engine—has presented new "bugs" to plague the maintenance men.

Of particular interest is the story of the search for new alloys including failures and successes following many experiments and test trials.

In the final chapter the author details the powerplants for our own new aircraft as well as craft of foreign make. Russian aircraft are included; their powerplants in the main are copied from German design with but few changes. The glossary of terms with which Major Eames concludes his volume makes not only for interesting reading but an invaluable reference book for any reader contemplating a career in the aircraft industry.

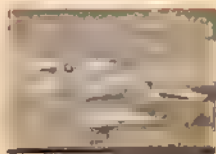
Interlingua a Prima Vista (Interlingua at Sight) by Alexander Gode (Storm Publishers, 80 East 11th Street, New York 13, N.Y., 82 pages—\$2.00) explains Interlingua, the new international language, by means of pictured explanations.

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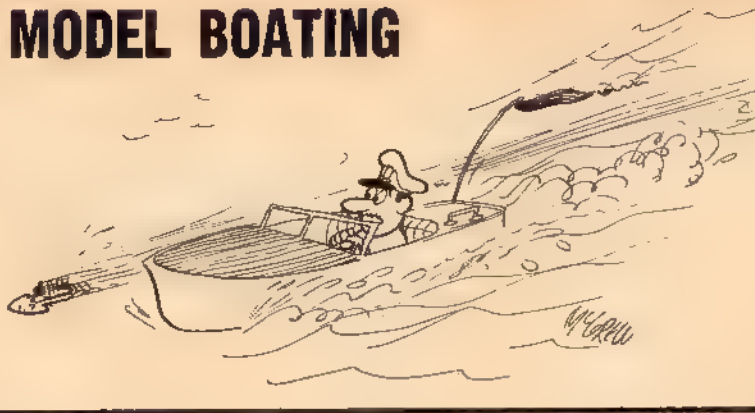
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MODEL BOATING



You'll find all manner of helpful information and suggestions here covering power and sailing models, steam, electric and internal combustion motive power

■ Probably the greatest worry of model boatmen is that their craft will "sink without a trace"—a serious possibility for any boat, and especially so if it is equipped with R/C. Anthony Gandiano (6732 Avenue R, Houston 11, Texas) has dreamed up a neat float to cure this situation; it won't prevent the boat from sinking, but it *will* leave a telltale buoy on the surface, with a line attached to the foundered ship.

Tony made a buoy of a small plastic bottle—the kind that some medicine tablets come in nowadays—and cemented a lid to it, on top of which is a die-cast "sun hatch." In the forward deck of the model, a larger plastic bottle is fitted; it should be deep enough to hold the floating buoy plus an ample length of line coiled beneath. So that the buoy will not fall out every time the boat is turned bottom up when it is being handled, it is held to the deck with a light coating of water-soluble glue. The cord should be about 10 ft. longer than the known depth of the water, and the float painted bright yellow to make it easy to spot.

Another of Tony's ideas is the simple rudder adjustment device also shown below. If your craft is fitted with R/C, it is difficult to know beforehand exactly how to set the rudder, to get perfect straight-running. If you install a small turnbuckle in the rudder linkage, you can make the needed slight adjustments to rudder setting. Tony would like to correspond with other model boatmen interested particularly in steam boats and model racing yachts.

Boating enthusiasts who have not yet seen a copy should be sure to take a

look at the Air Trails 1955 Model Annual. It covers model planes, boats and cars, has quite a few features that appeal especially to the boating fraternity. For example, there are complete plans for a scale model of a Staten Island ferry boat—a perfect job for any sort of propulsion machinery, be it electric, steam or I.C. engine—and plenty large enough to carry full R/C gear. Though much too large for full-sized plans in the Annual, it can be made from such plans obtainable, for 50¢ per copy, from Hobby Helpers (770 Hunts Point Ave., New York 59, N. Y.). Other Annual boat material includes a four-page pictorial showing what the model sailors are doing in every part of the country—and in most every category of model boating, scale-sized outlines and specifications of dozens of commercial glow and diesel engines including water-cooled and outboard types, and a comprehensive Directory of model clubs in the U. S. and Canada.

That hardy West Coast boating group, the Southern Calif. Model Power Boat and Yacht Assoc. (S.C.M.P.B.Y.A. to the initiated) had a boat contest sponsored jointly by the Corona Model Boat Club and the Inland M.B.C. (Results elsewhere in this column). The proposed Whittier Narrows Flood Control Recreational Area was discussed; tentative requirements for the S.C.M.P.B.A. had been drawn up by Les Carey and Bill Price, and after due consideration, these recommendations will be forwarded to the Los Angeles County departments for inclusion in the final setup at the Whittier location. I.M.P.B.A. boat decal packets enjoyed a lively sale, since members

feel they serve the two-fold purpose of advertising the I.M.P.B.A. affiliation and promoting the I.M.P.B.A. program throughout the country.

A "feature" of the meeting was the reading by Commodore Bill Baughman of the rather lengthy proposed by-laws for the group. Since the S.C.M.P.B.Y.A. just sort of "grewed," it never had any formal rules; now that it is expanding, the officers and members felt it should have a more formal organizational setup—hence the official reading. The by-laws had been shaped up after long and hard work by Sec.-Treas. Roy Donovan and Bill Baughman, and mimeo copies will be mailed to all members.

How do you boat enthusiasts like that tiny R/C boat made from a little Revell plastic cruiser that heads the R/C column in this issue? For those who want something of this sort, but aren't too good in the field of "watchmaking," why not consider putting lightweight R/C equipment in one of the new Sterling 14" plastic boats? The boat is low cost—allows you to get right into the R/C installation, without the necessity of taking time out to build up a craft from a kit, or from your own plans. We have heard of several R/C installations in the Sterling plastic ship—will try to get details of same for those who want to try it.

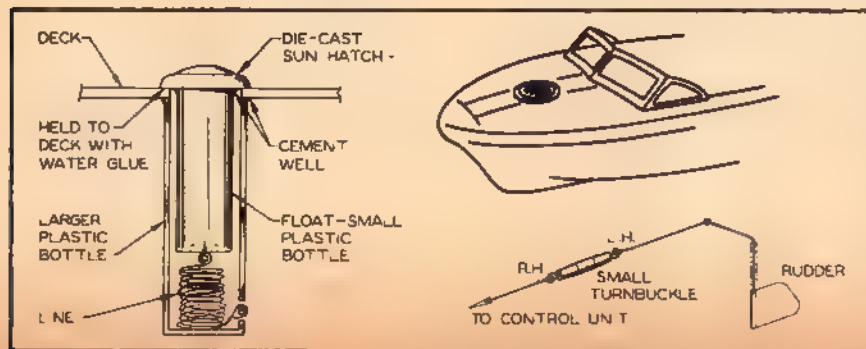
And speaking of R/C, those boat enthusiasts who didn't see it should dig up a copy of the May 1955 issue of ATH, and study the sample R/C boat layouts shown on p. 32-33; suggestions for equipment to go into boats from a simple outboard runabout up to a deluxe multi-control ship are described. There's even a selection of apparatus for a steam tugboat! Idea of the mockups is that they should help the beginner in the field to get a start—and of course, the three individual mockups shown needn't be followed exactly. You can combine the equipment, propulsion systems and layouts to fit your own ideas—and pocketbooks.

Since that beautiful J-3 Cub model plane appeared in the Jan. '55 issue of ATH, with a set of floats for it in the following issue, many modelers who have stuck to either model planes or boats have become interested in combining these two hobbies—an especially good idea now that the summer season is upon us. Those who want to try this with smaller planes might look into the float kits sold by Consolidated Model Eng. Co. (New York 51, N. Y.) which are 22" long and suited to models up to a total weight of about 2 lbs. All die-cut parts, of course, so they are a quick cinch to assemble.

There are not yet very many water-cooled engines on the market, and if we are to judge by the number of ideas that are suggested for converting air-cooled engines to water-cooling, this problem must rank high with the boat boys. We've had notes on water-cooling in almost every past column, so those of you who want to adapt your air-cooled engines to cabin cruisers and other craft where they won't get much moving air over the fins, check into these ideas and you'll surely find one you can use.

Some builders like to fit their craft with all sorts of lights, but this becomes complicated through all the necessary wiring and bulbs required, not to mention the batteries needed to power the latter. Pat O'Hara (48 Forrest Ave., Sayreville, N. J.) suggests that the boatmen swipe the idea used by model railroaders for multiple lights; these craftsmen use a single concealed bulb, and

(Continued on page 55)



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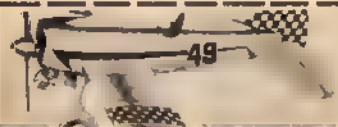
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Everything Under Control?



News, Views, Comment on Radio Control Cross Country Reported by Howard G. McEntee, W2SI

Visitors to Florida are asked to stop by for a bit of flying, if they are near the Daytona Beach area. Charles Faraldo (Route 1, Box 92A, Daytona Beach) says he and other R/Cers fly at Tomoka Field, 12 miles north of the city. There are paved runways, and the field is used only for R/C and cattle-grazing. At last count Charley said there were 17 R/C planes in town and half a dozen boats. He still favors his Robot—can't understand why there aren't more of them in use. (Neither can we—it's a slick performer and a good-looker, too). He is the only proportional flyer in the group.

Texas reports in the person of Gordon Gabbert (721 S. Austin St., Dallas 2). He tells a sad tale of a 400 ft. dive straight down, when the elevator horn of his 3-channel plane broke. Another member of the "Down-Elevator Club" is Ben Beard, who Gabby claims should be called the President of this select group. Gordon is hard at work on what he hopes will be his "Nationals plane"—a 7 ft. span Cub à la Schnieder, with 2-speed Spitfire engine; it will be fitted with reeds if Gordon can get his 50 mc. transmitter stable enough. He also has ideas on a special plane to take a crack

at the F.A.I. R/C Speed Record.

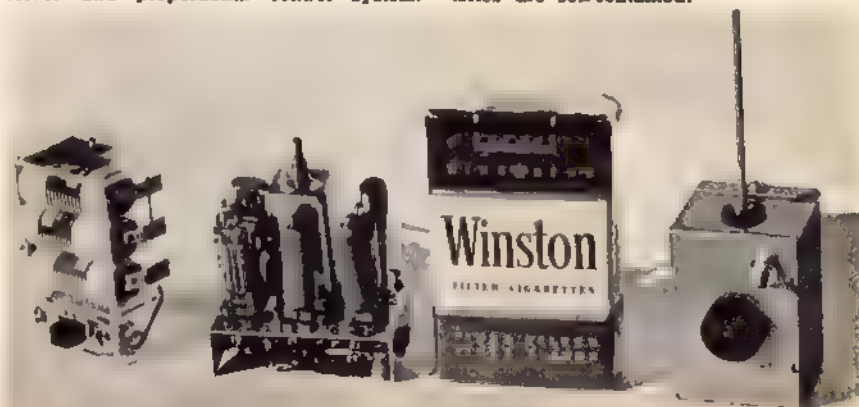
From nearby Irving, Texas, G. L. De Haes sent some more interesting news; this is the fellow who builds his own sub-miniature copies of the Sigma 4F relay (he's a watchmaker by trade!) and he tells of a tiny reed receiver he has produced, using five of these relays, a sub-min reed unit he made, and with three of the smallest hearing aid tubes. Uses only 22½ V. (0.3 ma. total B drain for the receiver, with A drain only 45 ma.). The receiver controls two Bonner servos, in which the original motors have been replaced by 1½ V. units. Looks like G.L. is also trying to break into the ranks of the D.E. Club; he writes:

"About a month ago I was flying and put my ship in a power dive. When I started to pull out, I missed 'up' and hit 'down' again, and before I could think, the ship was on its back 3 ft. off the ground, hesitated, then started climbing out on its back. After all this, my brain was a little slow, so I hit 'up' and piled into the deck. This could turn a man to drink."

News from the bayous in a long letter from George Trammell (1815 26th St., Gulfport, Miss.). He says there

World's smallest R/C boat (top of page and below) is 8½" plastic Chris-Craft outfit by Hal Halcek with his own receiver and proportional control system.

From left, below, is receiver battery pack, recvr, king size cigarette pack and Hal's 2 x 2 x 1¼" transmitter—yes, the batteries are self-contained!





Sperry system controls pilotless QF-80C beep box (above); guidance antennas.

have been quite a few starters in R/C, in the Gulfport-Biloxi area, but only one of them—Cliff Capers—has stuck to it. After some real hard luck he is now doing pretty well with a modified R/C-Master fitted with proportional. Capt. Art Brock has moved to Bossier Base, Louisiana, and is flying a couple of Beams, plus a Live Wire Sr. that has an English reed outfit in it. George's pals, Bill Beverly and Earl Hamilton, are going strong, while George himself seems to be still living dangerously—he casually mentions wrecking his famed little 38"-span Cub, after an .065 engine was

(Continued on page 61)



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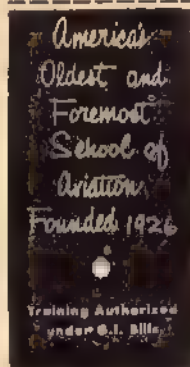
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Speaking of HOBBIES

WE HAVE MORE FUN THAN ANYBODY

Yessir, it's the truth. We can't think of anything else that can be as much fun as editing a hobby magazine—unless, of course, it's building models. We were speaking about this recently while going through a batch of photographic entries in "What's Your Hobby?" and "My Favorite Model" competitions. Some beautiful models (and some pretty terrible photography!)—but you know what? Hardly anybody ever smiles in these pictures! And why not? Aren't they proud of their handiwork? They should be. So we said to ourselves: let's pick out the happiest looking young fellow and run his picture in the next S.O.H. as an example of what we'd like to see. So there's Preston Davis, 13, from Memphis. Hunting rabbits with his .410 gauge shotgun, he bagged 40-lb wildcat.

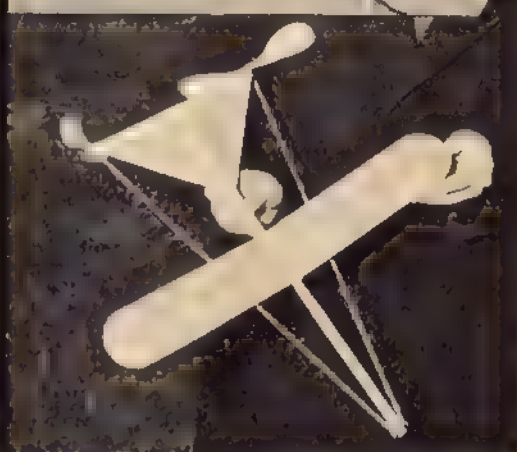
So the theme this month, then, is keep smiling in those pictures. And keep the pictures coming. Let's see BETTER pictures. Write so we can read your comments; if you can't write legibly, print or typewrite your message—but not on the back of your photographs. Never write, print or type on the back of photos. If you do you usually ruin 'em. And when contacting us or submitting material, be sure to include your name and address.

Now who would write and not put down his address? Hundreds of guys. Chaps like John Altonen (we think of Metuchen, N. J. (no street name or number given). Johnny writes fairly well but hurries over his signature so we're not quite sure of that. He told us how he likes the mag and asked for some dope on OK Cub engines. We couldn't send it since the vital address was missing. Now he knows why he didn't hear from us—but what about all those others?

Billy Terrell of Raleigh, Tenn., wrote (yes, he gave us his home address and yes, we could read his writing) asking us to tell him which was the best of five Half-A engines. Impossible, Billy, all that you listed were good makes, nationally advertised and nationally distributed. When an engine is distributed through the regular trade channels to the hobby shop you know it's pretty good to begin with.

John Gatto of Detroit wrote asking what a rubber-powered twin pusher is or was. At right, John, is a "modern" version of the old twin. Then Elmer Stevenson of Los Angeles asked us if he could feed coconut to birds. El, here's a picture of black-capped chickadees at an unusual backyard cafe maintained by naturalist Charles Philip Fox in Oconomowoc, Wisc. Mr. Fox puts peanut butter and grain into the hollowed-out coconuts. The birds also enjoy the coconut meat.

From now on where possible we hope to reply to as many of your questions in "Q and A" with pictorial answers as possible.—A.L.L.



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apprentice training leads to



CAREERS IN CRAFTSMANSHIP

Today's big apprenticeship programs, besides letting you earn while you learn, provide regular classroom instruction and many opportunities in more than 80 skilled occupations

■ President Colgate W. Darden of the University of Virginia stressed recently in a magazine article that "non-college-bound" high school students who are "hand-minded" and "whose bent is toward a skill or craft" should receive the advantages of training provided by apprenticeship.

If you are "hand-minded," as President Darden calls it, and aircraft modelmaking is your hobby, you may wish to explore your opportunities for a career as a model or patternmaker in the aircraft industry. Among other craftsmen employed in the industry are airplane and airplane engine mechanics; electrical and radio mechanics; line service, propeller and ac-

By REGINALD PERRY

Bureau of Apprenticeship
U.S. Department of Labor

cessories mechanics; machinists, and tool and die makers.

Perhaps you are interested in a career outside the aircraft industry. If so, there are at least 300 skilled occupations, under more than 80 trade classifications, in which apprentice training is given. Throughout American industry over 156,000 apprentices are currently in training for craftsmanship in a variety of trades. More than 48,450 apprentices are in train-

ing in the aircraft, automotive, shipbuilding, railroad, machinery and other metalworking trades; 17,650 are in training in the electrical industry; 59,020 in the carpentry, plumbing, painting, bricklaying and other building trades; and 30,490 in public utilities, textile, printing, engraving and other industries.

Apprenticeship equips a man as an all-round skilled worker in a trade. It is thus very different from training for only one or two operations. An apprentice machinist, for example, learns to operate each of a long list of machines, such as lathes, boring mills, grinders and planers.

If you are accepted for apprentice

training, you will receive the benefit of both on-the-job training and related classroom instruction. You will learn by doing, earn while you learn, and your wages will increase as you advance from one step of your training to another.

At the end of your training, you will be equipped for a career that will net you life-long returns. America's craftsmen are in the upper strata of her work force. From the ranks of craftsmen are drawn the key men—the foremen, the superintendents and the job instructors—and many of them are eventually promoted to top ranking positions such as plant or project managers.

On completion of your apprenticeship, you will be awarded a certificate attesting to your status as a full-fledged craftsman. This certificate will be as significant to you as is a diploma to the high school or college graduate.

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To qualify for apprenticeship, you must have more-than-ordinary ability to work with your hands as well as with your head; be able to pass aptitude tests designed to determine your mechanical ability; and be between 16 and 24 years of age, although age limitations are often waived if an applicant shows outstanding ability, has had previous experience in a trade, or is a war veteran.

As an apprentice, you will start on the simpler tasks and advance to the more complex and difficult ones until you have mastered all the operations performed by craftsmen in your trade. Under the guidance of the foremen, journeymen and instructors to whom you are assigned, you will acquire experience on the job and related technical knowledge in all of the practical



These more than 80 job classifications, representing practically any skilled trade you can name, also include certain titles in "technician" category. Above: apprentice draftsman.

cal and theoretical aspects of the work in a skilled trade.

Your wages, which will be based on a percentage of the journeyman wage rate in the locality in which you are employed, will increase as you advance from one period of your training to another. One of the large aircraft manufacturing companies, for example, pays its 150 or more apprentices as much as 60 percent of the journeyman hourly wage during the first period of their training, and increases their pay every six months until they are receiving 92 percent of the current journeyman wage during the last period of their training. In

1954, the journeyman wage rate in the company's plant was \$2.20 per hour, or \$88 for a 40-hour week.

The need for training in order to earn good wages is emphasized in a pamphlet entitled "What Happens to Most Boys" which was issued by the Wisconsin Manufacturers Association.

"Smarter boys," the pamphlet points out, who have graduated from high school and also those who have had a few years of college look for a job that "promises real training rather than high wages at the start. They may enter an apprenticeship and in that way prepare themselves to acquire special skills and get the greater

A carpenter apprentice is shown here on the job working under the supervision of a foreman. Big need in building.



With proper application, skilled workers can advance to various top positions. This machinist apprentice is setting up work on a milling machine, while his supervisor checks his work for accuracy and precision from a blueprint.





The foreman is showing him how to operate a lathe—but a machinist apprentice learns to work many other mechanisms: boring mills, grinders and the like.



Along with their on-the-job training, apprentices must attend classes four hours a week where they learn theoretical part. Place: local public vocational or high schools.



A radio technician apprentice learns how to wire an electronic chassis. Our article tells you where to get information.

happiness enjoyed by those who have learned to analyze mechanical problems, read blueprints and interpret technical and engineering descriptions. A man who has served an apprenticeship in any of the important trades has something that will be of assistance to him throughout his life, even if he enters another occupation from the one he served as an apprentice."

The all-round skilled worker—the craftsman of American industry—is as nearly secure as anyone can be in a changing economic world. Industry is constantly changing, but as opportunities for jobs in some occupations decline, job opportunities in other occupations increase. The demand for skilled workers continues, and a person who has acquired all the basic skills in one occupation can more easily grasp new and additional skills required for another occupation.

Air Trails HOBBIES For Young Men assures an apprentice experience in every kind of work performed by all-round skilled workers in a trade and also assures him of continuous employment until he completes his apprenticeship. In nearly all the area-wide programs in the construction trades and also in many of the metal-working trades, apprentices are indentured to an area committee.

A large proportion of the apprenticeship programs in the various industries, including those established in individual plants and those operating on an area-wide basis, are under the direction of joint management-labor committees. There are over 7,000 local joint apprenticeship committees now established.

In setting up an apprenticeship program, employers and labor have the assistance of field representatives of the Bureau of Apprenticeship, U. S. Department of Labor, and of State apprenticeship agencies in states in which they have been established.

Approximately 150,000 employers are taking part today in apprenticeship programs, which are conducted in accordance with standards time-tested by experience in the different trades and industries.

APPLY AT EMPLOYMENT SERVICE OFFICE

If you plan a career as a craftsman in a skilled trade, you will want to find out about the best opportunities for apprentice training in that trade. To get this information, go to your nearest State Employment Service office. A consultant there will advise you on where the greatest opportunities are and also give you an application form to fill out.

Another source of information about opportunities in different industries and trades is the head of your local vocational or high school. You may also wish to interview an employer in or near your home town, a representative of an employer's association, or officials of the local branch of the labor union in the trade that you are considering.

Additional information regarding what apprenticeship is, how it is conducted and what it offers you, is contained in the following publications, each of which may be obtained free of charge by writing to the Publications Division, Bureau of Apprenticeship, U. S. Department of Labor, Washington 25, D. C.:

"Looking Ahead by Way of Apprenticeship"

"Training for Craftsmanship—USAF's Maintenance Apprenticeship Program"

"The National Apprenticeship Program"

"Training Workers to Keep Pace with Increased Production"

"Accent on Apprentice Training"

"Training Tool and Die Maker Apprentices at Talon"

"Wanted More and Better Workers in the Building Trades"

TWO TYPES OF PROGRAMS

There are two kinds of apprenticeship programs, individual plant and area-wide. An area-wide program is established in a city or larger area in which employers throughout the area participate. Usually in the latter type of a program an apprentice is indentured to an area joint management-labor committee which directs the program, instead of to his employer.

The committee arranges for his employment by a participating company and may, if agreeable to that company, transfer him when advisable to another company. This procedure



Ken Models Boats for an Aeronautical Education

Pride of the Madison Square Boys' Club in New York City is this busy builder whose handicraft really pays

■ As a boy of eight Kenneth L. Eads III wanted to construct model airplanes. So he bought a kit of materials in a local hobby shop. His interest became a hobby, and he "bought lots of kits." Kenneth, who is now a junior in Haaren High School, New York, explains that he "advanced from the small to the big planes that I now fly in parks."

At 17 Kenneth has a clear sense of direction. Though he has taken up other hobbies such as model ships and full-size outboard motor boats, he has not forsaken his chief interest. In the central technical high school of New York, he is enrolled in Aeronautics. He has no doubt as to his major subject in college. His goal is aeronautical engineering.

How will he finance that ambition? He expects to win in the Fisher Body Contest in which he will enter a model car. "If I don't win this year," Kenneth adds, "I will next year."

Like a man who has acquired the success habit, Kenneth at 17 has learned to advance step by step—from small things to larger projects. He has experienced the thrill of small achievements, for he has sold models for sums ranging from \$5 to \$350.

On summer jobs he has acquired unusual skills, such as rope splicing. At Freeport, L. I., Kenneth and his brother worked for a man whose business was renting boats. In addition to learning how to handle boats and rope, he found opportunity there to develop initiative and enterprise in the matter of saving money. His employer paid him only \$10 per week, but guaranteed board and lodging. In actuality, however, accommodations proved to be a minor problem, as Kenneth and his brother remodeled an abandoned bus and installed cots and other comforts in their sleeping quarters.

While on this job Ken became so interested in boats he paid \$100 for one of his own. Ultimately he remodeled this boat and sold it at a substantial profit.

The model ship which Kenneth liked best was the one he modeled after the Gjoa. This is the craft Amundsen commanded in the Arctic regions when he succeeded in navigating the Northwest Passage (1903-6). Ken's model was exhibited by the Madison Square Boys' Club at a

(Continued on page 67)

Photography & Models



Avro CF-100 Canuck



Percival Prentice



A-20 Havoc



Vickers Supermarine 508

Toupolev Tu-10



Aircraft Identification Photos from Models Is Canadian's Hobby

■ Bob Stewart is a 16-year-old Toronto airplane and model building fan who has put his camera to good use. Bob confesses that his idento-airphoto hobby has a peculiar beginning. "I was laid up in bed in March of 1952 busily employed in making your Douglas Mailplane (Nov. '51 issue)," he reports. "I broke half of its ribs and in disgust threw it away. To make up for the time spent I took a small piece of balsa and carved myself a simple scale model from the three-view plan. Since then I have made 101 jets, rockets, bombs, seaplanes and even WW I prop-driven buggies.

"That's the first half of my hobby. The second half started last summer when I had three pictures to rush off on a film before it could be developed. I hung a few of my aeroplanes on threads suspended from our TV antenna's guy wires and snapped picture. Results: terrific!"



PBV-5

XF4D-1 Skyray



Left: Typical mounted display includes national insignia and specifications.

Short Seamew AS-1



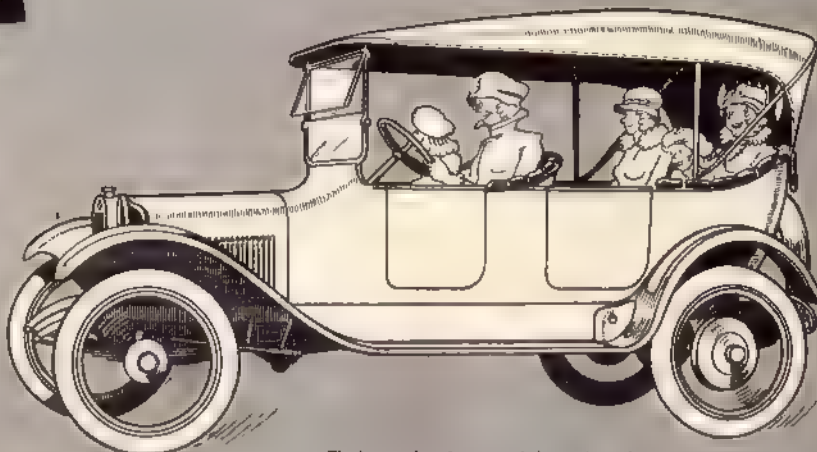
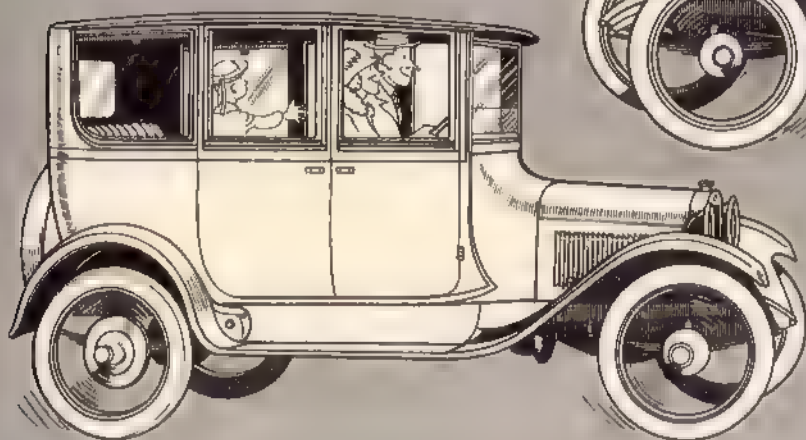
AUTO Progress

By DOUGLAS ROLFE

The Dodge Story

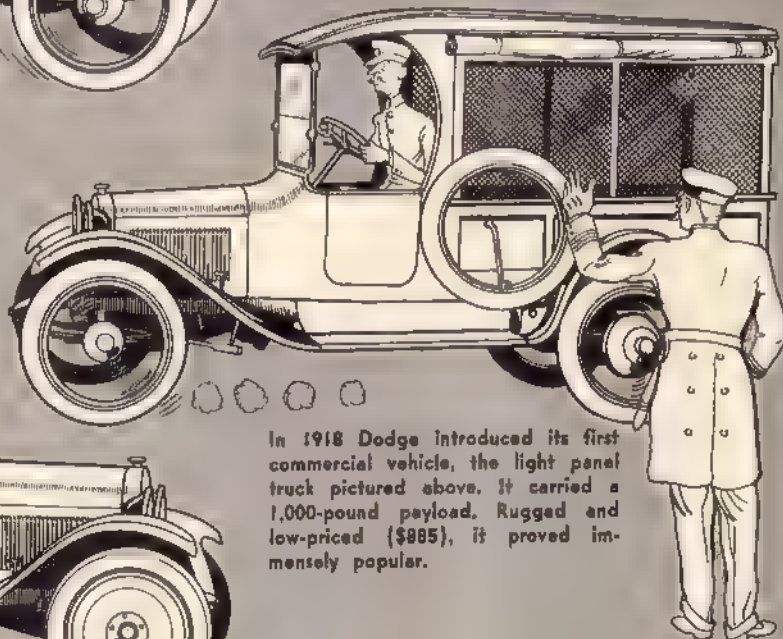
For forty years "Dodge" has stood for ruggedness and economy — a combination that has made and held many enthusiastic customers.

Dodge was early exponent of the closed car and produced two and four-door sedans of this type between 1917 and 1919. Chassis was same as original 1914 model, but had wire wheels. Car below: \$1295.



First production model Dodge (above) appeared in November 1914. It had a 24 hp. 4-cylinder L-head engine and seated 5. Peculiarities of the early models included unorthodox gearshift and, in the case of the touring cars and roadsters, a dummy door on the driver's side. Cost only \$785.

First closed car with all-steel body, the 1923 four-door Type A sedan (below) was highest price Dodge of this period. Fully equipped it sold for around \$1400.

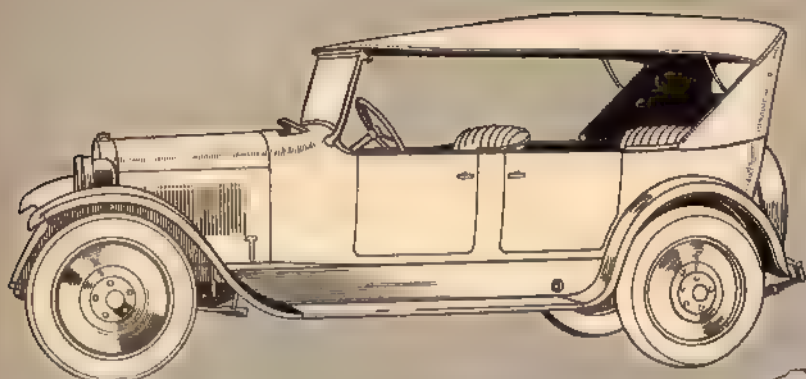


In 1918 Dodge introduced its first commercial vehicle, the light panel truck pictured above. It carried a 1,000-pound payload. Rugged and low-priced (\$885), it proved immensely popular.

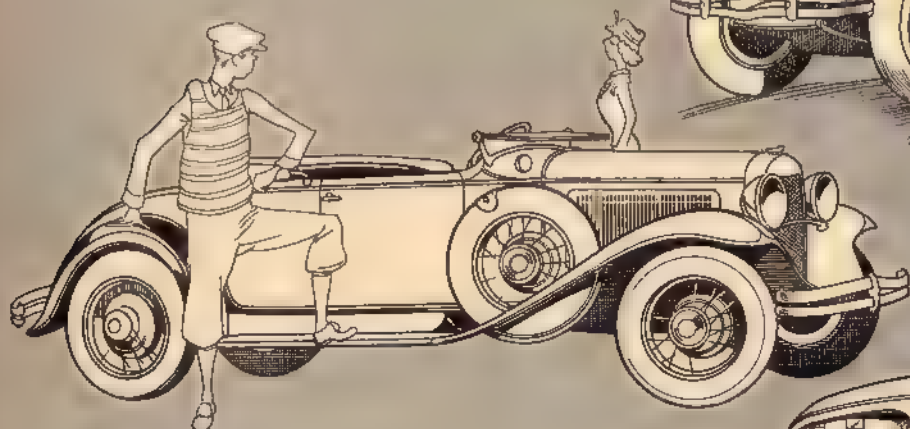
The first Dodge automobile appeared in 1914 and was placed on the market in early 1915, but the Dodge Brothers, John and Horace, had been in the automobile business long before this. They had already established a reputation as builders of automotive parts, and for years had supplied engines to the Ford Motor

Co. Their first car to bear the Dodge label was a simple but immensely rugged job which soon established a name for reliability. That reputation continued through several changes of ownership. (Today the company is a Division of Chrysler.) In 1929 Dodge switched to sixes. Later it went to straight eights, and then. (Continued next page)

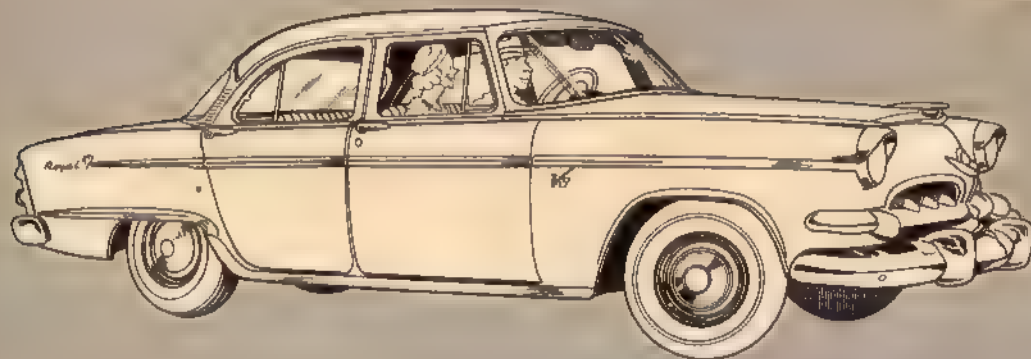
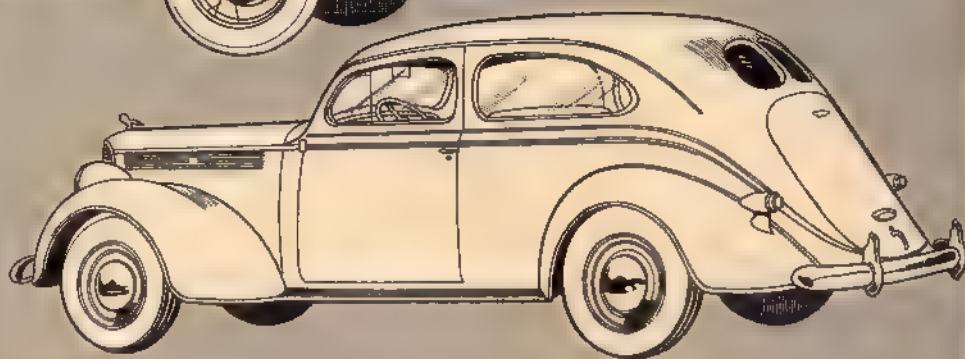
THE DODGE STORY



Lower, more rakish lines and straighter hood line distinguished the 1926 Model WB 126 touring car (above). It also had a new radiator and one-piece windshield. Over 300,000 WB models sold in '26.

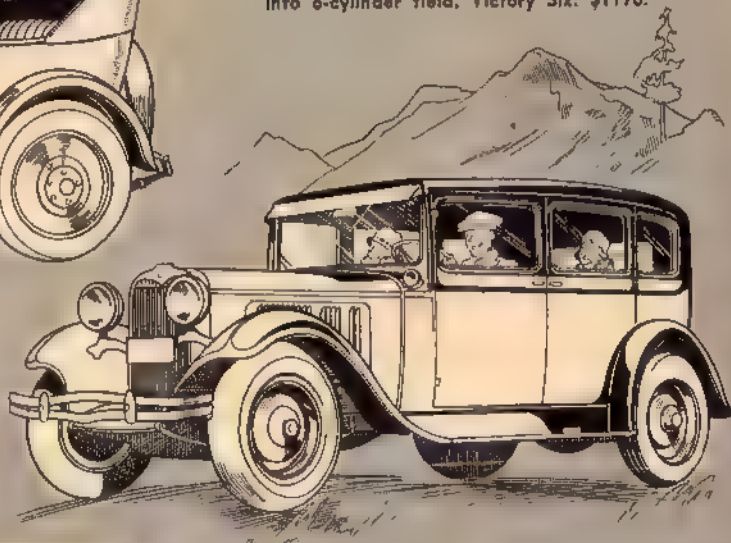


The 1938 two-door sedan (right) showed further marked changes in Dodge design and followed closely design trends of the period with fender skirts, turret roof and built-in trunk. By this time Dodge had returned to sixes.



Current Dodge models like this streamlined beauty (left) have powerful V-8 engines and every conceivable modern refinement to rate a top place.

The Victory Six (below) produced in 1928 marked a sharp departure from previous Dodge approaches to car design. Along with a companion model, the Standard Six, it was first Dodge venture into 6-cylinder field. Victory Six: \$1170.



First Dodge Straight Eight came out in 1930. It had a 78 hp. engine, four-wheel brakes and conventional gearshift. The sharp-looking job shown here (left) is 1931 model which had a more powerful engine. This model sold for \$1,170.

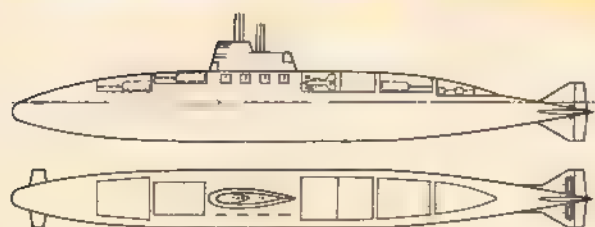
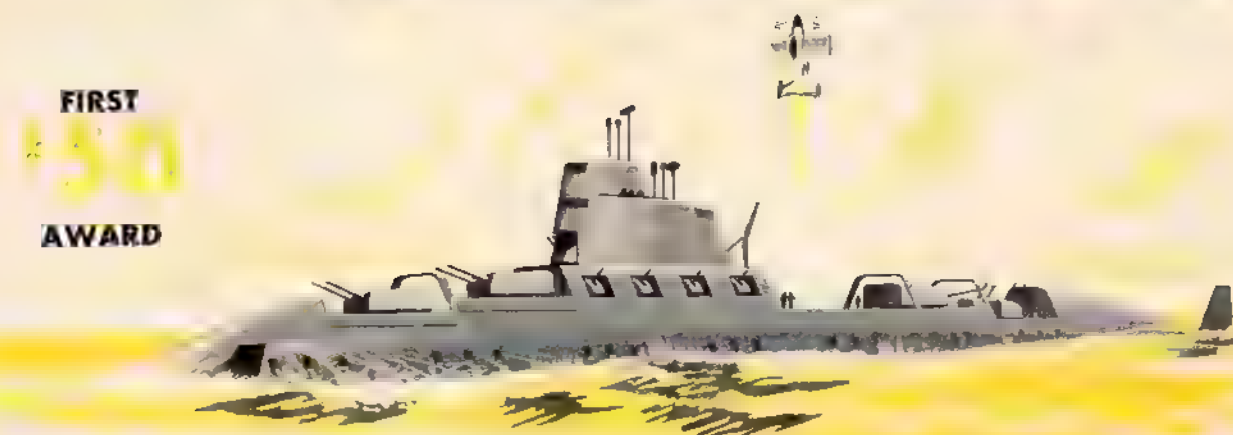
back to sixes. The present V-8 type engine was introduced in 1953, as was also a torque-converter drive system. Dodge pioneered in making the windshield wiper standard equipment, and as early as 1921 a practical heater was offered as extra equipment. During World War I Dodge supplied thousands of ambulances to the

armed services. The 1916 "Business Car," a light panel truck mounted on the standard Dodge chassis, enjoyed great popularity with storekeepers, was also widely employed as a light mail truck. The cars shown here do not represent all Dodge models ever produced; emphasis has been given to the better known ones.

Boat Design Competition

FIRST

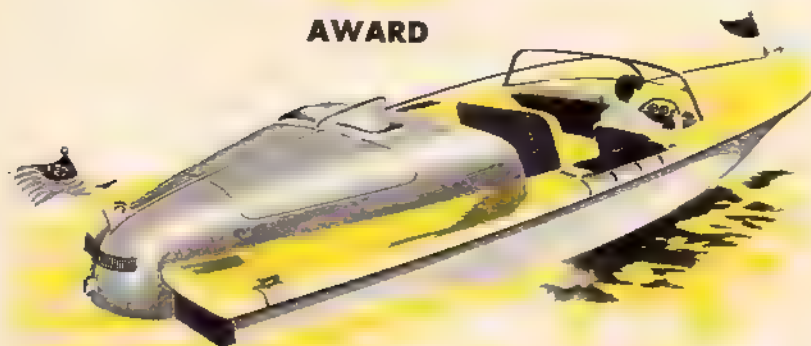
AWARD



Nuclear-powered, multi-purpose attack submarine by Daniel A. Duran of New York City. Armed with heavy guns in turrets and equipped with VIO fighters. Gun positions and hangar are decked over when ship is submerged. Sub can be used for a variety of duties, such as cargo-carrier, transporting troops and equipments for beach assault. Main advantage is that it can travel fairly undetected over long distances with important military cargo, and is sufficiently well armed and protected not to need escort.

SECOND

AWARD



High-speed deluxe runabout by Robert E. Heyman of Newark, N. J. Hull construction is of color-impregnated molded Fibreglas. It is powered by a 340 hp V-12 engine and features an inverted "V" bottom, which offers good stability. The entire aspect is of a fast, modern-looking boat with plenty of speed, comfort and safety designed into it. Especially attractive is the stern treatment which combines utility and looks.

THIRD

AWARD

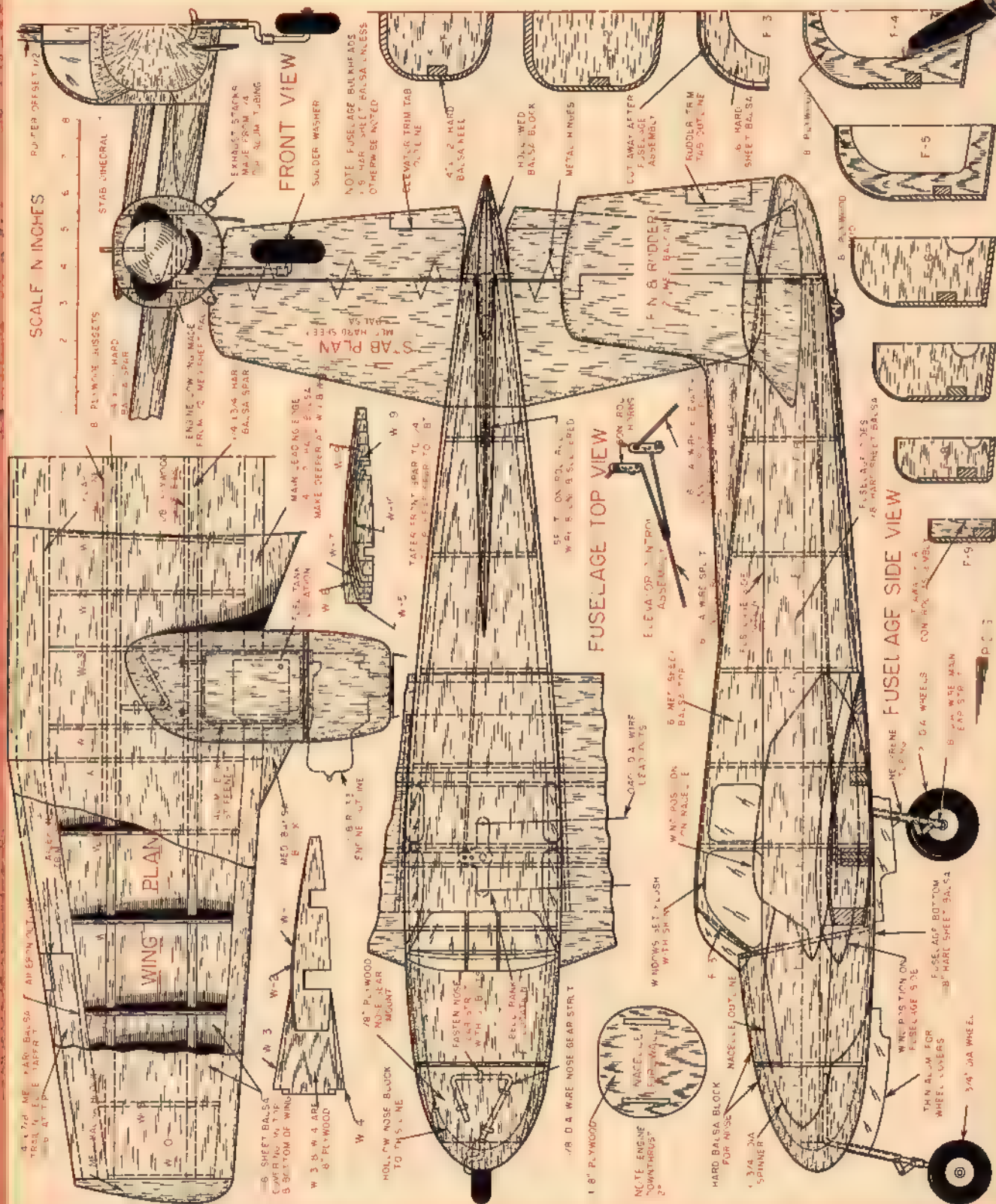


Racing catamaran "Sea Midget" by Ingemar Strandberg of Lulea, Sweden. Design is a powered adaptation of the Polynesian outrigger boat. Construction is of plywood and Fibreglas. Because air flowing between hulls lifts boat almost clear out of water and reduces surface friction, such craft are capable of high speed on small power. Sea Midget is powered by 25 hp outboard. top speed 45 mph.

Rules governing this design competition are as follows: Profile (side), plan (deck) and (cross) sectional views of the proposed craft will be required, plus any detail sketches necessary to illustrate unusual features. Do not handicap yourself by submitting hull drawings less than 6 inches in overall length. Give sketches of craft from three-quarter front and rear positions. Photos of a model of the proposed design may be included. Information of powerplant(s), estimated performance,

dimensions and explanations of special features are required. Data as to age, occupation or schooling of the entrant should accompany each submission. Mail entries to Boat design Competition, Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y. Entry each month judged most practical or of greatest significance will receive \$50; \$25 will go to second place and \$10 for third. The editors regret they cannot enter into any correspondence or return entries.

Factory-furnished drawings were used for this slick twin-engine plane. Wingspan is 40''; overall length 27''; takes two .33's. Flown by Army and Air Force as L-23A and B.



SCALE IN INCHES

24 1546 172

FRONT VIEW

FUSELAGE TOP VIEW

FUSEL AGE SIDE VIEW

fr
s



Twin Bonanza full-size plans are on Group Plan #755 from Hobby Helpers 770 Hunts Point Ave., New York City 59. (50c)

Designed by O. E. McKEE

Advanced Control Line Flying Scale Project:

Beech Twin Bonanza B-50

■ Beech Aircraft at Wichita, Kansas was formed in 1932 by Walter H. Beech, pioneer designer and builder of the Travelair line of airplanes. Most famous of these was the Model 8 "Mystery" racing monoplane in which Frank Hawks established a number of transcontinental speed records and Doug Davis outsped the fastest Army pursuit during 1931 National Air Races in Cleveland, thus clamping the lid on military biplane fighter design.

Other well-known early Beech Company airplanes were the radical stagger-wing cabin biplane, probably one of the most efficient aircraft of its time, and the all-metal Twin-Beech, which almost rivals the DC-3 in durability; it appeared in 1937 and some are still going strong. After World War II, the company put on the market the now famous 4-passenger all-metal Bonanza with a "V" type tail, an innovation pioneered by Beech during the war. As demand grew for a small executive transport with twin-

engine reliability capable of transporting five to six people and operating in adverse weather, Beech came out in 1949 with the prototype of the Twin-Bonanza—factory designation, Model 50.

The "Twin" features reinforced cabin structure, extra strong keel and floor sections, and an airframe structure capable of taking loads in excess of 8 G's.

Spanning only 45 ft. 4 in. and powered by two flat-six Lycoming engines rated at 260 hp each, the airplane is capable of 205 mph maximum speed and a landing speed of just under 70 mph. In military dress, it serves as a light transport and liaison plane with the Army Field Forces and the Air Force as L-23A and L-23B. The civilian version is extensively used by corporations to transport executive salesmen and small goods. Though the price of the airplane is rather steep—around \$75,000—its high speed on relatively low power makes it economical.



FOR THE WEAPONS COLLECTOR



The Pennsylvania Rifle

By JAMES M. TRIGGS

As tall as a six-foot pioneer, this gun helped conquer Kentucky and other parts of "wilderness"

■ The Pennsylvania Rifle originated in the region surrounding Lancaster, Pa., around 1725. The misnomer "Kentucky Rifle" was not used to describe this rifle until long after it had become well known as a distinct type of American firearm.

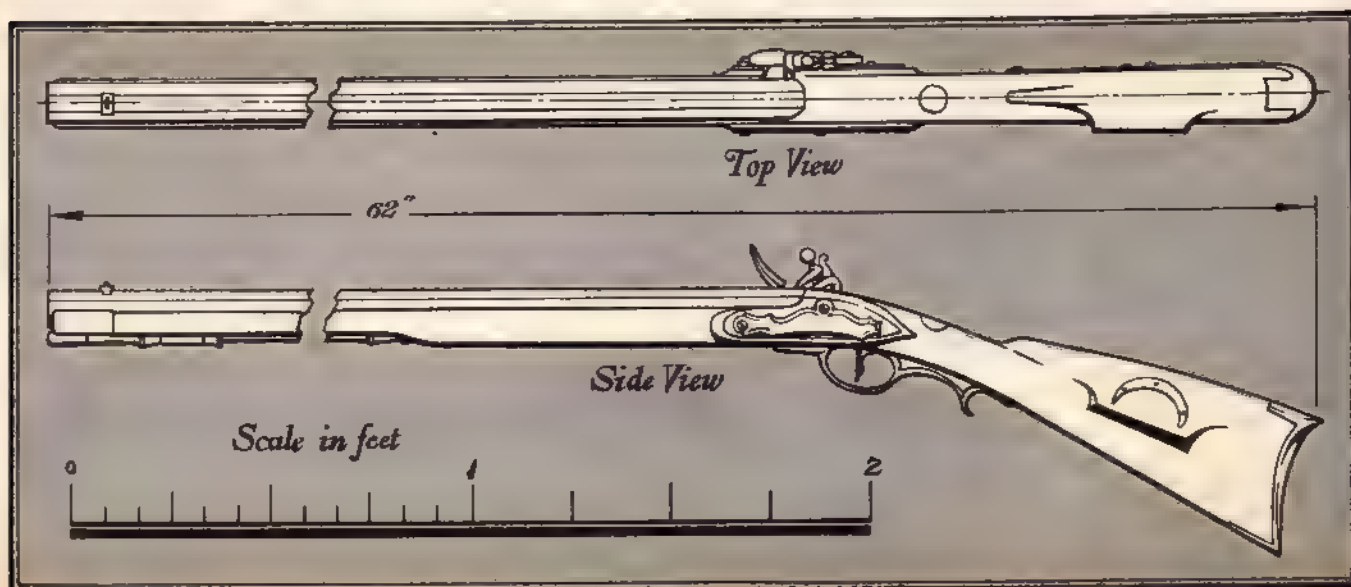
Individual gunsmiths in backwoods shops around Lancaster began this famous design with the conversion of the Jaeger rifles which many of them had brought from Europe.

The early Pennsylvania gunsmiths built these weapons entirely by hand with the most primitive of tools. Strips of soft iron were forged and welded around a rod to form the octagonal barrels. The rod

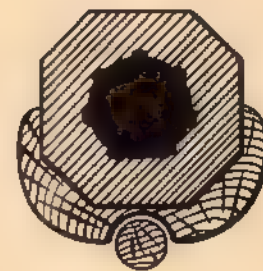
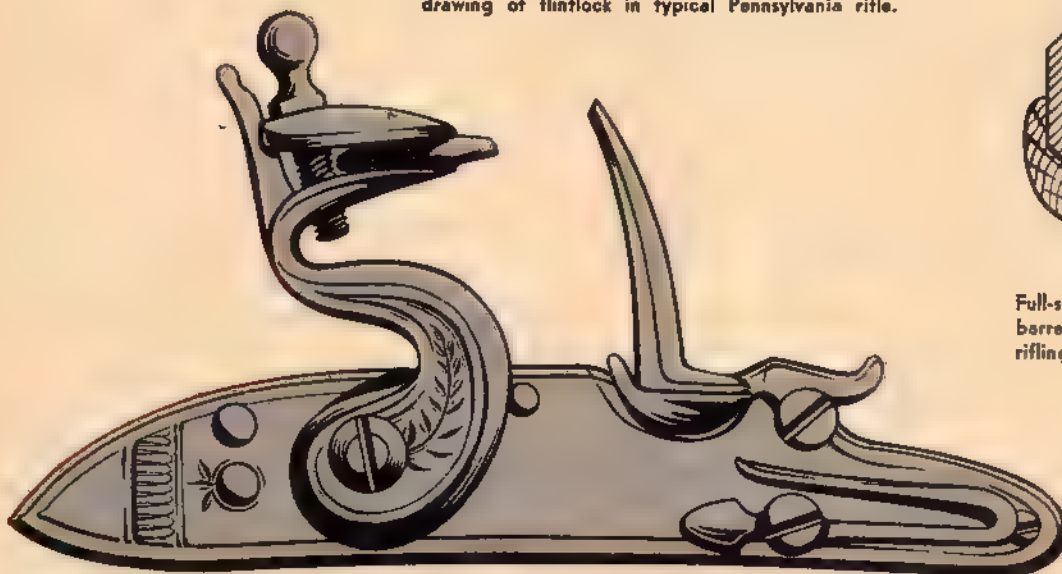
was driven out and the bore was rifled by a long and patient hand operation. The caliber of the bore was determined by the judgment of the gunsmith, and hence the profusion of calibers.

The illustration and plans show a typical Pennsylvania Rifle of about .50 caliber. The calibers ranged from .33 to .80, average being .45. The weight of the rifle was around 9 pounds, and the average barrel length about 40 inches.

The stocks of the rifles were almost always carved from curly maple. The butt plates, trigger guards and other fittings were brass. An ornately decorated brass patchbox was set into the right-hand side of the



Above: rifle in 1/4 actual size. Below: full-size drawing of flintlock in typical Pennsylvania rifle.



Full-size cross section of barrel and stock, showing rifling. Approx. .50 cal.

stock. Some stocks were elaborately carved and otherwise decorated with metal inlays.

The leather bag shown with the rifle above was carried along to keep the materials needed for shooting afield. Attached to the straps of the bag is a powder horn. Some of the various accessories are depicted at the right. The horn and metal chargers were used to measure the proper charge of black powder to be poured into the muzzle of the gun on loading. A small charger may be seen hanging from the straps of the bag, above.

The bullet mold and ladle were iron, the mold being made to match the caliber of the gun closely. The difference between the diameter of the ball and the bore was made up by the use of a cloth patch which was wrapped around the ball before it was forced down the barrel. The cone, or nipple wrench was used to remove broken or defective nipples in rifles which had been converted to percussion ignition in the early 1800s.

Another accessory used in the percussion era was the false muzzle and bullet starter, also shown in the illustrations. The four pins at the base of the false muzzle fitted into corresponding holes drilled at the muzzle of the rifle. A ball was dropped into the flared bore of the false muzzle. The bore of this accessory was rifled to match the gun itself, and when the starter was used to force the ball home this rifling cut into the ball so that it entered the actual muzzle smoothly, protecting it from damage.

The worm was a tool which could be attached to the end of the ramrod and was used to extract unfired balls, patches or other obstruction stuck in the bore of the rifle. . . . The percussion system doomed the "Pennsylvania."

Some Accessories Used With The Pennsylvania Rifle



worm



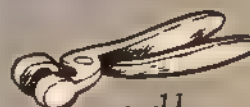
chargers



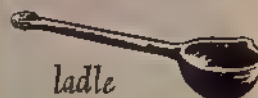
screwdriver



cone wrench



mold



ladle

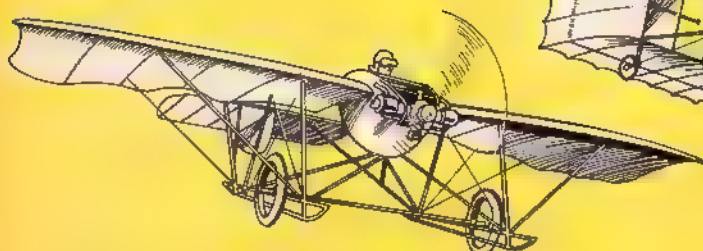


false muzzle

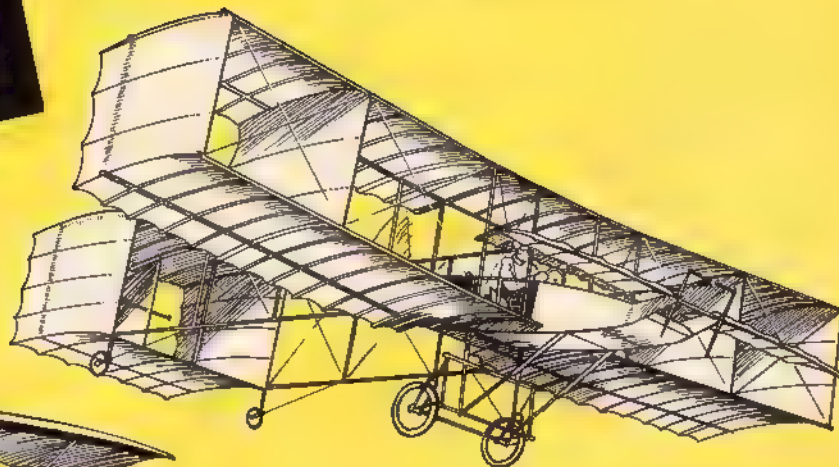
AIR PROGRESS

By DOUGLAS ROLFE

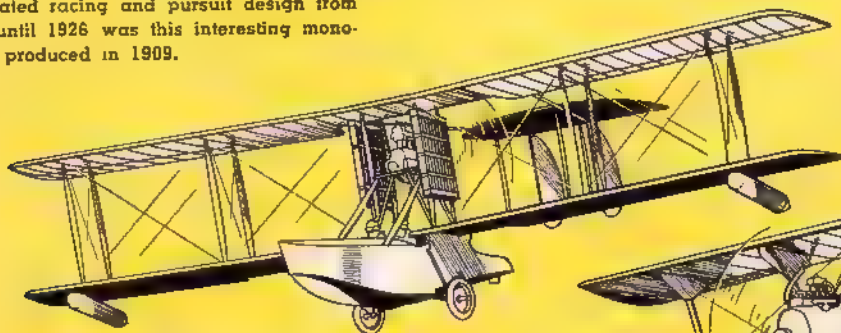
Milestones in Aviation History-1



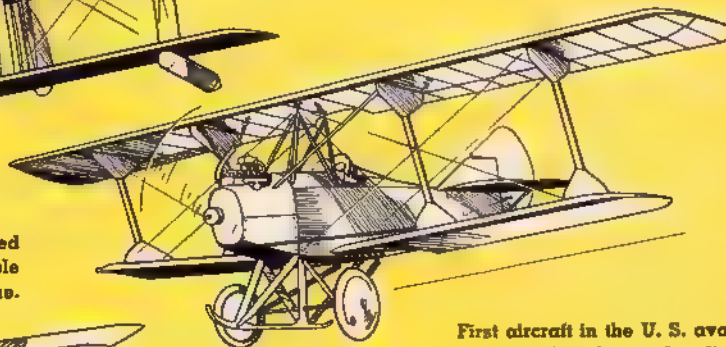
Forerunner of the famed Nieuports which dominated racing and pursuit design from 1910 until 1926 was this interesting mono-plane produced in 1909.



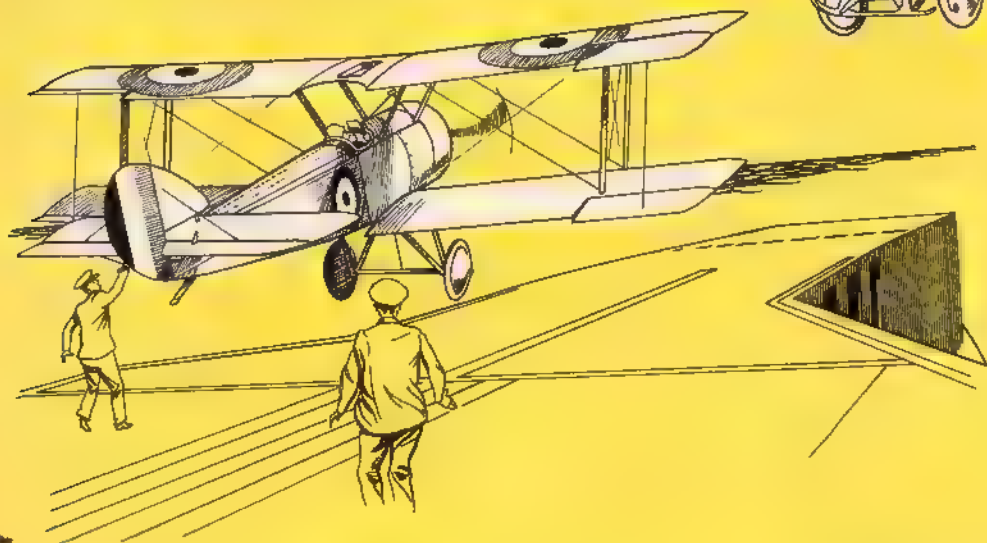
First officially recorded city-to-city flight was accomplished in 1908 when Henri Farman completed a 27-kilometer non-stop flight between Chalons and Rheims, France, in a 50 hp Voisin biplane (a modification of Farman's 1907 record-breaking Voisin). Elapsed time for flight, 20 min.



World's first bonafide amphibian, the Sopwith Bat Boat produced in 1912, had a seaworthy single-step hull, fully retractable landing gear and independent sea-rudder. 90 hp Daimler engine.



First aircraft in the U. S. available in kit form, the little single-seat Ace also was one of the earliest U. S. sport planes. 40 hp E.W.W. four-in line liquid-cooled engine gave it a speed of about 60 mph. Built by Horace Keane Airplanes Inc. on the site of La Guardia Field, N. Y.

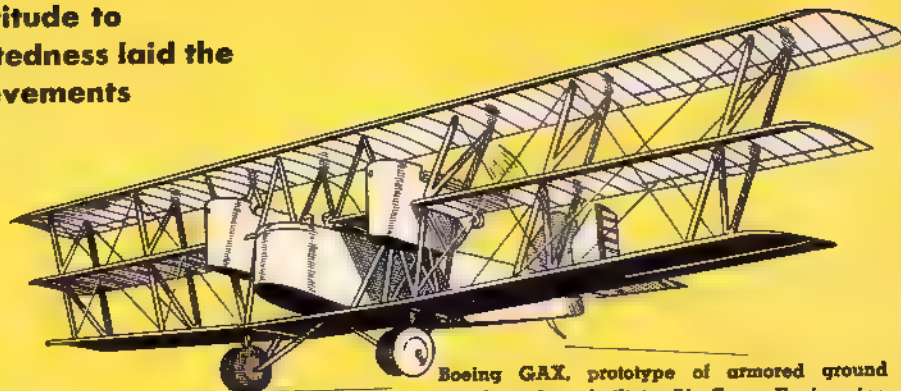


First deck landing on a moving vessel was accomplished by Sqdn. Commander Dunning, R.N.A.S., in 1917 when he put down his Sopwith Pup on a specially constructed ramp above the fore deck of H.M.S. Furious. No provision was made for arresting gear; in a second try, pilot drowned.

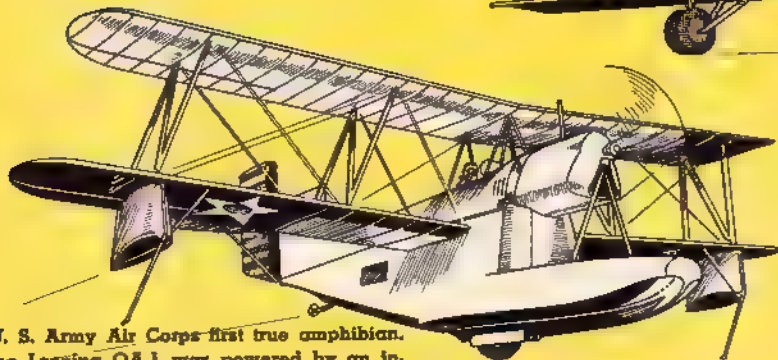
This month our Air Progress section includes some famous firsts in aviation history—meaning that comparatively short era since man actually learned to fly. For instance above is shown the first deck

landing on a moving vessel, H.M.S. Furious was actually a normal fleet cruiser with a crude landing ramp on the foredeck. Yet it was from such awkward efforts that the modern carrier developed. Jet

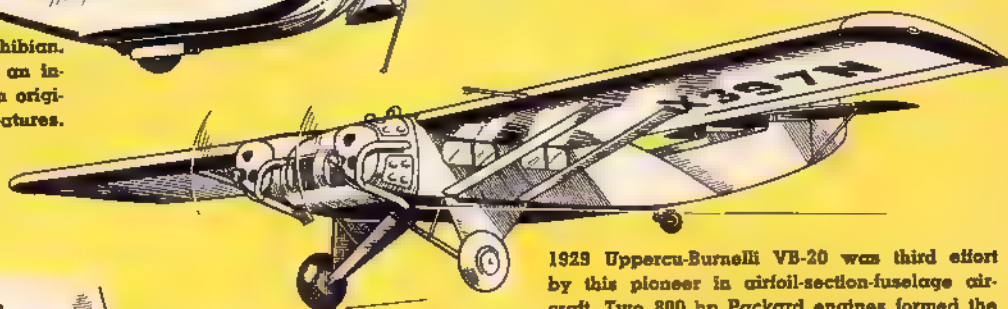
Aviation owes a debt of gratitude to early pioneers whose farsightedness laid the foundation for present achievements



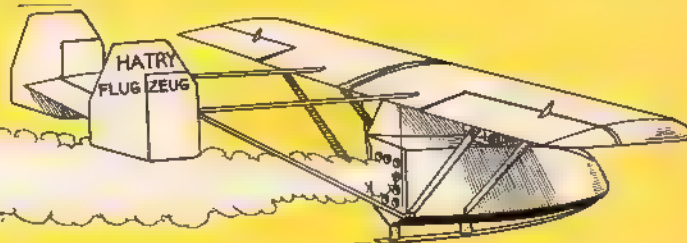
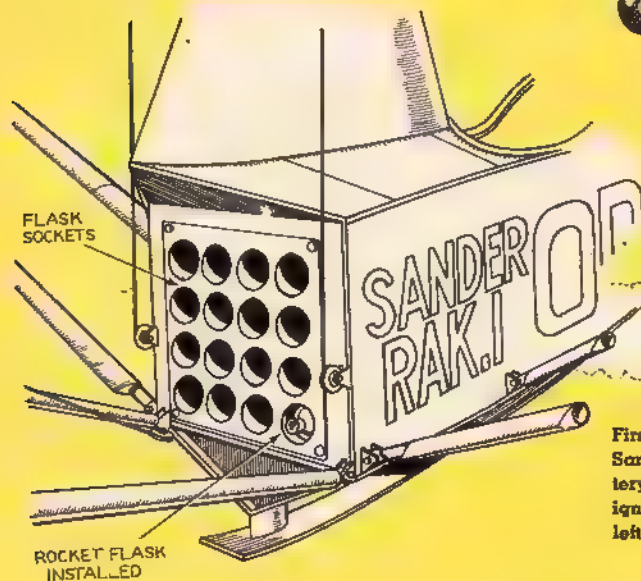
Boeing GAX, prototype of armored ground attack triplane built to Air Corps Engineering Division specifications in 1920 by the famous manufacturer of today's jet bombers. Powered by two V-12 Liberty engines. Production type designated as GA-1.



U. S. Army Air Corps first true amphibian, the Loening OA-1 was powered by an inverted Liberty V-12 of 435 hp. Design originated in 1924 had many advanced features.

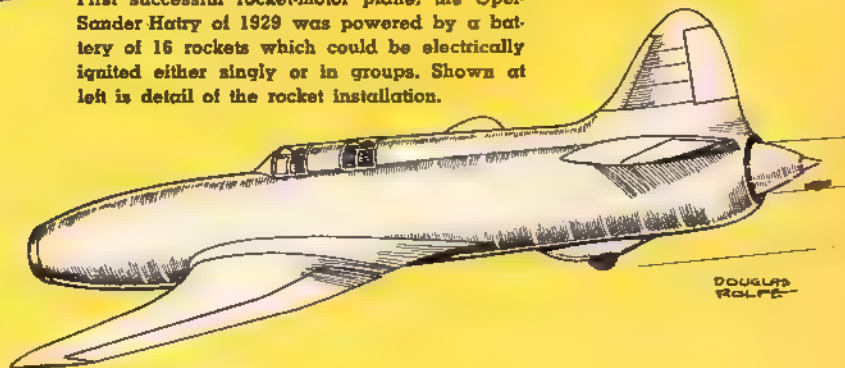


1929 Upperco-Burnelli VB-20 was third effort by this pioneer in airfoil-section-fuselage aircraft. Two 300 hp Packard engines formed the powerplant. Burnelli planes of this general type were first aircraft to transport a full-size ordinary motorcar. Also first to have stressed-skin fuselage construction.



First successful rocket-motor plane, the Opel-Sander Hatry of 1929 was powered by a battery of 16 rockets which could be electrically ignited either singly or in groups. Shown at left is detail of the rocket installation.

The Caproni-Campini was first jet aircraft to complete a cross-country flight (Rome-Milan, Nov. 1941). Although the average speed was quite modest, the news of this flight created a sensation in aviation circles, particularly when it was later learned that the Caproni jet had actually been airborne in 1940. Conventional engine drove three-stage ducted fan compressor. German He.178 was first jet to fly.

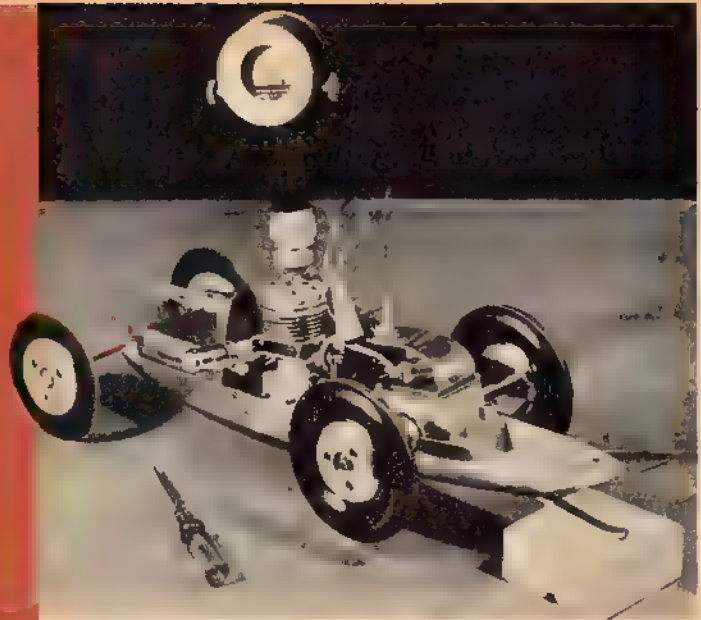


DOUGLAS
ROLFE

and rocket engines also owe much to experiment and a "first time." However odd some of these pioneer contraptions may appear today—and Farman's Voisin doesn't exactly look like a record-maker in

nonstop flight between cities—nevertheless they contributed to the ever-increasing conquest of the air. Some craft, of course, like Loening and Burnelli designs showed remarkably advanced thinking.

Tuning Up For Winning Speeds



No mumbo-jumbo double talk here—just straight stuff from one of the country's best model car men: don't be misled by hop-up hounds whose tactics seldom pay off!

By ROBERT J. MORE

■ J. Bstflsk strides confidently through the fence opening. He sets his shiny four-wheeled package of speed on the track, hooks up the cable and gives the car a shove. She's off! Then faster and faster she speeds around the 24th miler. The engine seems about to scatter itself, so high is the rpm. Will he never call time on it? He does and there it is: 148 mph and an easy first place. Applause dies and a sort of murmur drifts through the pits. "Joe cut this or filed that," Jack Genius "set up" his engine for \$\$\$—it *should* go fast. "He must have a secret fuel."

In every case they are wrong. There is no sure, secret way to winning speeds. Nine out of ten "secrets" fall through and prove to be merely a costly lesson. More attention to fundamentals, cleanliness, and slow development based on past experience are the only answers to how you can tune up for winning race car speeds.

The purpose of this opus is to show tyros and old-timers alike who have trouble that consistency and slow development are not only the sure road to speed but the cheapest and most enjoyable one as well.

So sit down at your work bench, take your race car apart and I'll try and give you the inside story on Speed Tuning. I guess the best place to start is on—

GENERAL CARE

Dirt is your worst enemy. Most parts—ball bearings, pistons, liner, pan—are precision machined and fitted. Nothing can shorten their lives more than abrasive dirt. Sure, a car gets dirty running on a concrete track in the open, but that is no reason why you cannot try to prevent wear on these parts as much as possible. When a day's running is over, always flush out tank, engine, and the pan with some sort of cleaning fluid. Rear wheel bearings should be flushed from the inside out and the front wheel bearings from the outside towards the center pole side of the car. In other words, wash grit out from the clean side of the bearing. Do not try to drive it through retainers and ball bearings.

Have it apart yet? Periodically you should take pipe cleaners and wipe out all the boltholes in the pan. Pans are expensive and chips or dirt have a nasty habit of hastening thread stripping. Always use bolts with undamaged threads. Proper tools also should be used. And no gripping engines, pans or such with a vise. A vise is a fine thing to have around but do yourself a favor and use it only on really rugged items that can't be distorted, marred or thrown out of balance.

One more thing and we leave this

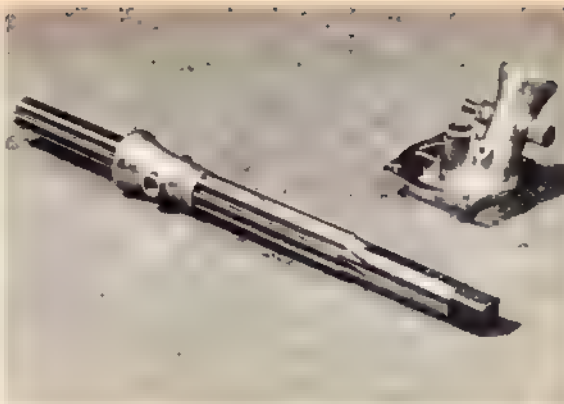
subject of generalities. In running you may have had trouble with parts loosening due to vibration. This can cause a lot of damage. Allen bolts alleviate this greatly. They are hardened and can *really* be tightened and evenly too. Try to use fresh bolts and wrenches, though, for rounding of the wrench end and socket head will leave you with a hard-to-remove bolt. Okay, so now it looks like you're ready for the—

ENGINE

As the Offenhauser stands high and alone in big car racing, so does the Dooling 61 in today's competitive model car racing. Here you have a really precision piece of machinery. Filing, porting and those other old-style speed methods are not only of little use but can be downright damaging. For instance, weakness will result. A hard chrome liner that is round and straight with parts untouched is the main requirement. If you doubt your liner's trueness have someone measure it with a gun gauge. Piston clearance should be about .0025". Falling off of speed is generally traced to piston collapse. When the skirt is more than .001 inches out of round the piston must be replaced. For a bit extra *umph* out of that piston, radius the bypass baffle with a ball cutter

The author who has racked up five years' experience running model race cars, also put in three years of successful contest model plane flying. He presently holds the AMRCA Manufactured Proto Record at 144.46 mph set at the Bethlehem, Pa. track June 1953. The car was a

Dooling 61-powered Dooling Arrow. This same car formerly held the International MRCA world's record and also was National Modified Manufactured Proto Champ '51 and '52. Mr. More covers the race car nationals in the current "Air Trails Model Annual."



Two rotors (left) illustrate graphically difference between a stock one and a better one. One on right is stock; one at left is polished and relieved. Center pin: you bore out the venturi this far with #8 reamer. Backplate assembly shows plug in place on needle valve. At right: stock liner and a ported liner. The stock one at far right is considered best by author.

in a hand grinder (or on a lathe using a post grinder), being very careful not to nick the "ears" on the piston top. Do not attempt to lighten or port the piston. Weight removed is negligible and only shortens the piston life with likelihood of skirt collapse.

Change rings when the ends become excessively rounded or surface is smooth (no grooves show). A larger I.D. venturi helps. Bore out standard one with numbered, tapered reamers until wall thickness at the mounting end is about $1/32$ " thick. Polish inside walls. Our club uses an even larger homemade venturi that increases speed even more. If you're using hot fuel (10 to 50% nitro) you can rid yourself of a big headache by throwing out that needle valve. The standard jet is just right for peaking at between 18 and 28 laps. Plug the hole where the valve was and forget about it. For added window dressing, relieve the outer rim of the rotary valve about .003" in the lathe, leaving a $1/16$ " seal at its face. This reduces oil drag. Set the rotor spacing at .005", never less. When the clearance increases to above .009" reset to .005", checking the shim for excess wear.

The front end should be exceptionally free so that the bob weight will drop and rock when the front end case alone is held between the fingers. Assemble all with care, making sure all 16 roller bearings are in place, and check compression ratio. Do this by turning over engine until the piston is at top dead center. Then count the number of drops of oil it takes until the oil is level with the top of the sparkplug hole. Pyroil A at or near 70° F.; 50 to 60 drops is good. A lesser number means the engine will be critical in operation and you'll burn and stick pistons. Any more than 60 means loss of volumetric efficiency. High and low compression heads are available, or if you desire have a bunch of brass gaskets turned out of .009" shim stock. Add or subtract these until you hit about the 55 drop mark. That about

covers the engine room and the next logical step is—

IGNITION

To get the most power out of your fuel the engine must burn every bit of that which enters the combustion chamber—100% combustion can never be fully realized, but the hotter the spark the closer you get to complete efficiency. Hot spark, and you notice I emphasize hot, not only gives you more speed but saves you many sprints around the track.

Battery ignition is the old way. Most cars have it and many can't be converted to magneto. So if you must use batteries by far the most important part is the battery pack itself. Use only fresh batteries. Never apply heat longer than the minimum in soldering. Rosin core solder with high tin percentage and a hot iron do the best job. Put soldering paste on each end of every battery and pre-tin all connecting wires. A nine cell, $4\frac{1}{2}$ volt pack is the maximum that can be used. By the way, it's amperage that counts in the spark department, not the

volts. Connect the pack to the rest of the system with eyelets and screws. Trick jacks and connectors are unreliable.

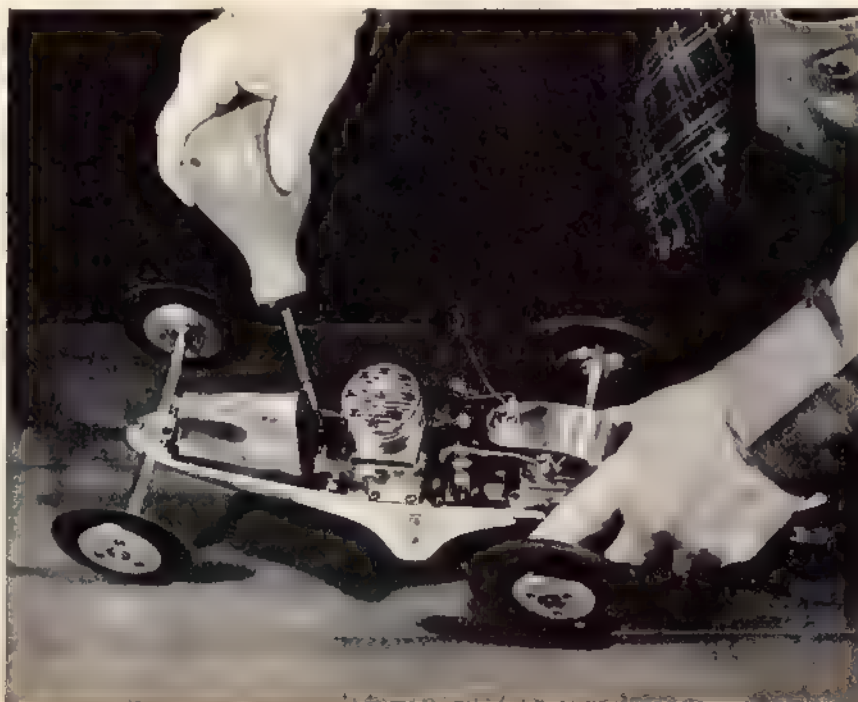
In coils you have the Smith Firecracker (red plastic ends), Aero Quality, and the OK.

Not much can be said about condensers. Just check that the one you want to use is not shorted and that it is well sealed against oil. Never use a paper one. A large capacity Wico Automobile condenser is reliable and can just about be forgotten once installed. It is almost universally used on magneto-equipped cars.

Set the points at .006" and clean before every run.

Magneto is by far the best type of ignition. Spark increases in intensity with rpm instead of decreasing as does battery ignition. Starting is easier and the replacement of batteries by a mag actually will increase the car's top speed by 2 or 3 mph.

The universally used Hornet magneto is set up in this manner: hook up your timing light. Adjust the flywheel so that just as one of the magnet retaining

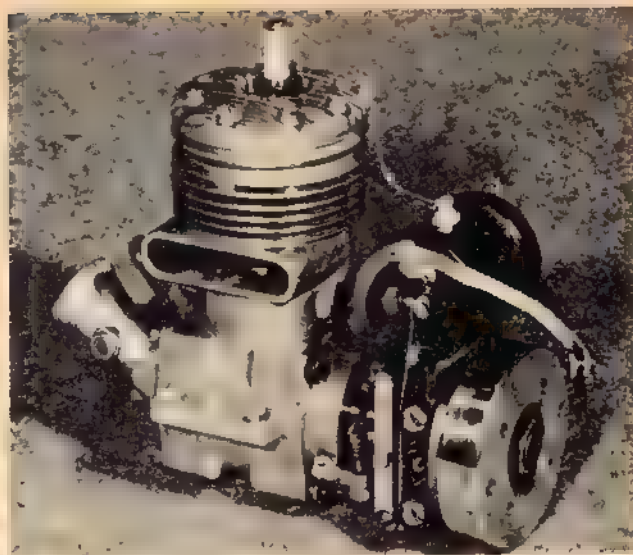


After each day's operation clean your car thoroughly with syringe bulb and cleaning fluid. Record-holder Bob gives some fine advice on just how important this is and proper steps to follow.

TUNING UP



If car speed falls off "mike" piston skirt for collapse when changing rings. More than .001" out of round means she's shot.



Popular "power egg" for car racers: Dooling .51 cu. in. engine equipped with Hornel magneto. Note absence of needle valve.

shoe's leading edges lines up with the rivet that holds laminations together, the points break and the light goes out.

Test spark by running up your car without spark plug on a buffing wheel, using a screwdriver as the electrode.

If testing finds the spark to be weak, first reset the flywheel to the other pole (i.e., if S change to N), change the condenser, then the coil, then the points, or lastly have the magnets recharged. By testing and changing in that order you'll have found your trouble long before you get to the magnet recharging stage.

Using the timing light and a timing gauge set the timing at .190 to .195" ahead of top dead center. This is the best all around setting. Sometimes lowering it to .170" helps the car hold peak speed for six full laps.

That completes the power package and we must move back along the power train to the—

GEAR BOX AND TIRES

In setting up a gear box remember that vibration, friction and binding rob your engine of horsepower. As in a full-scale automobile, crankshaft-horsepower and rear wheel-horsepower are two very different things. Reducing those three things I have mentioned cuts mechanical loss and, thus, more thrust is delivered at the rear wheels driving the car forward faster.

Gears should mesh smoothly and appear to mesh accurately without much backlash. Endplay of the axle should be just enough so it can be felt. The axle must be straight, of course. Be very sure collars or retainers that hold the axle in the proper position are tight. If set screws are used to hold the axle, replace with new ones every time the rear end is dismantled. On my Arrow I dimple the axle a bit with a drill where one of the set screws bites into the axle. Why all the precautions? Well, if the axle shifts while the car is running a rapid extraction of every tooth on those gears will

occur. Expensive and disgusting too, no?

The tire situation is a peculiar thing. Race car operators (big stuff or our models) are never satisfied with what's available. You hear the same gripes in sprint car pits as you do in model car pits. Throw treads, no life, no traction, and so on. Let's face it, fellows; we'll probably always be confronted by tire trouble. A revolutionary new tire would bring on higher speeds, greater centrifugal force and we're back where we started.

Currently, C. & R. Rubber Co. tires are the only ones available. Only those giving best speeds with a given gear ratio are listed:

Gear	Tire No.	Quality of Rubber	Diam.
1.5 bevel	#52	hard	3 3/8"
1.75	#43	hard	4"
1.75 spur gear	#50, #49	hard	4"
1.84	#43	medium	4"

All with the exception of #48 spur tire are designed for use on 1 1/8", Fairabend hub. #49 tire is designated for the C & R 1 1/8" hub. Wedge type tires are designed for use on the Dooling hubs with lock rings. The Fairabend hub will give higher speed than the Dooling hub.

In general hard or medium-hard tires are best. Soft ones tend to flex and ripple at high speed, causing vibration. If you're experiencing difficulty holding the track (slipping), add up to 5 oz. of lead at the rear but as close to the rear axle as possible. The amount must be found through experimentation.

Caution—be sure all hub bolts are tight before running. After every run check the drive tires for cracks at the hub and discard tires that are so damaged. Ignore these warnings and you'll throw a tire. A thrown tire at best usually means a bent axle, and at worst a broken gear box or pan.

FEEDING

Like tires this can be one of the most perplexing problems in high-speed

cars. Both are abstracts and cannot be positively measured or analyzed.

No two tanks give exactly the same type run or speed even though they may look alike. There are some excellent tanks on the market today—Fox, 1234, Dooling Arrow, and a few others. Good general dimensions for you guys with a pioneer spirit are: 3 1/2" x 2 1/2" x 3/8". Alter these to suit your car. Use at least .015" brass or tin and lap the ends to avoid leaks. As in any other part of the car vibration causes trouble. Mount your tank, whatever make, securely. If you aren't sure add another mount wherever you can.

There must be no leaks in the entire system. Change flexible tubing as possible. The shut-off system must be positive so that the air stream will not partly shut off fuel. Keep all air vents away from body parts to insure even positive pressure. If the engine runs too lean and quits, either increase the size of the air vent or move the tank to the inside (bride side) about 1/16" or both. If the engine runs too rich move the tank to the outside a 1/16" or install a smaller jet. Hotter fuel or a larger venturi will lean it a bit too. The back end of the tank should always be swung to the outside 1/8". Try to adjust the fuel system so that the car peaks at 20 to 25 laps. A noticeable loss of speed will occur if the car peaks at say either 12 or 35 laps.

NEXT ISSUE

Bob More concludes his "Tuning Up" with data on fuels, bridling and car operation. Don't miss it!

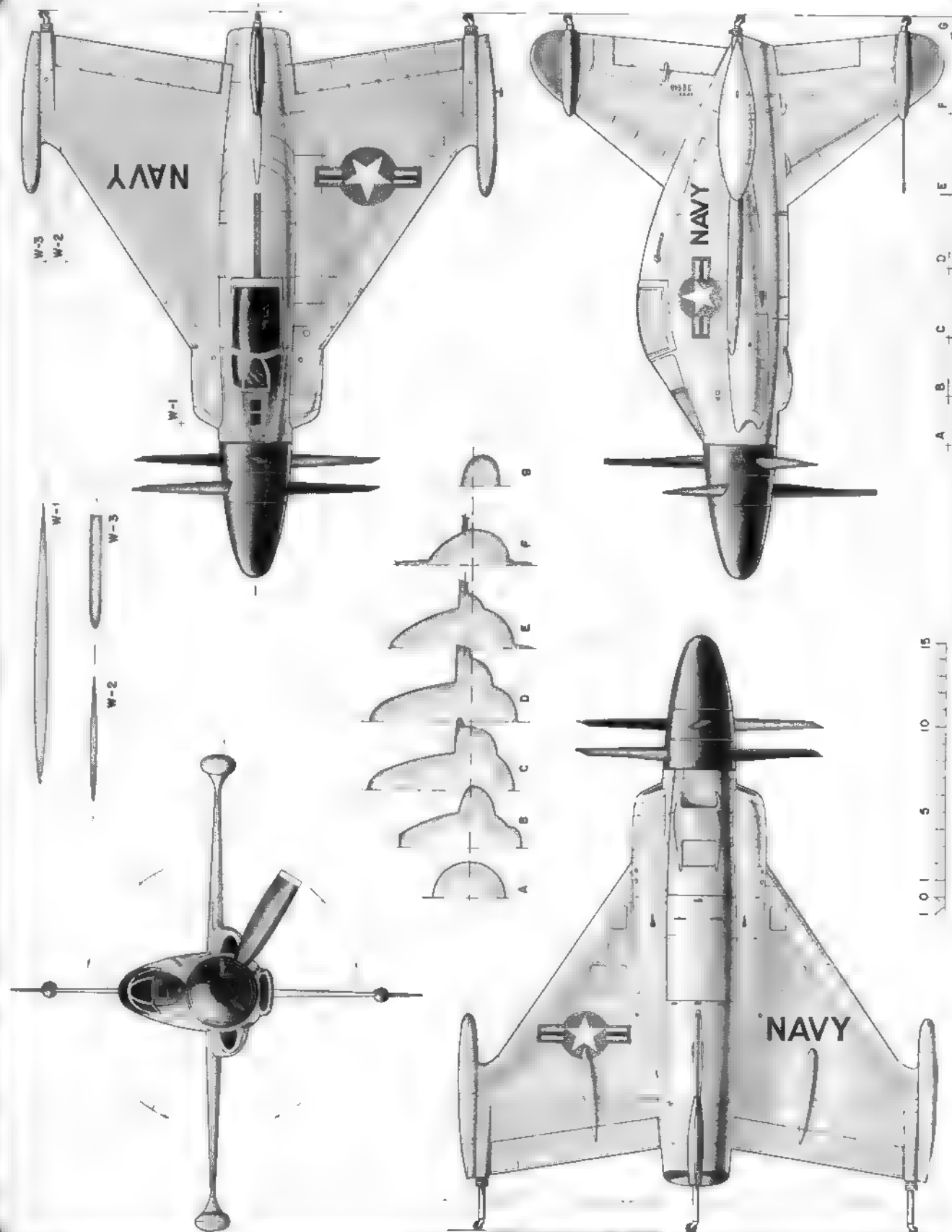
EVERY ISSUE

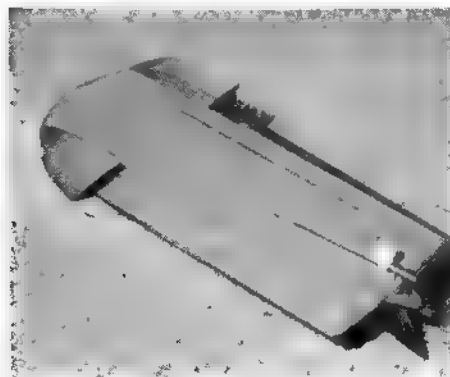
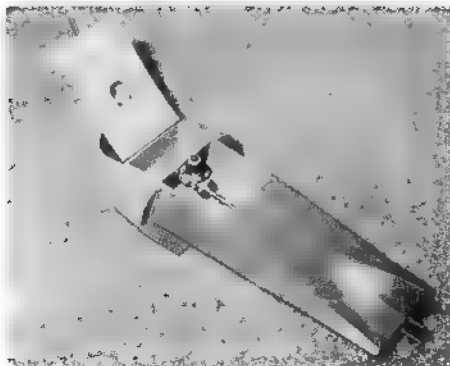
Read "Model Car News"—the only column of its kind in captivity!

CONVAIR XFY-1

37

SCALE VIEWS BY JEFFERIES





■ "Water Warrior" has a lot to offer in the way of performance, ruggedness, streamlining and simplicity of construction. Our test model was fitted with a Cub .074 engine.

With a total weight of 14 ounces speeds were consistently within the 15 to 20 mph range; this is not exactly slow. For those model boat fans who would really like something hot, an engine in the .09 to .15 size would really move it along.

The sponsons are designed so that the main hull of the boat will rise out of the water to minimize friction and at the same time yield a small amount of lift through the use of an aerodynamically shaped hull. The higher the speed attained, the more efficiently the configuration functions.

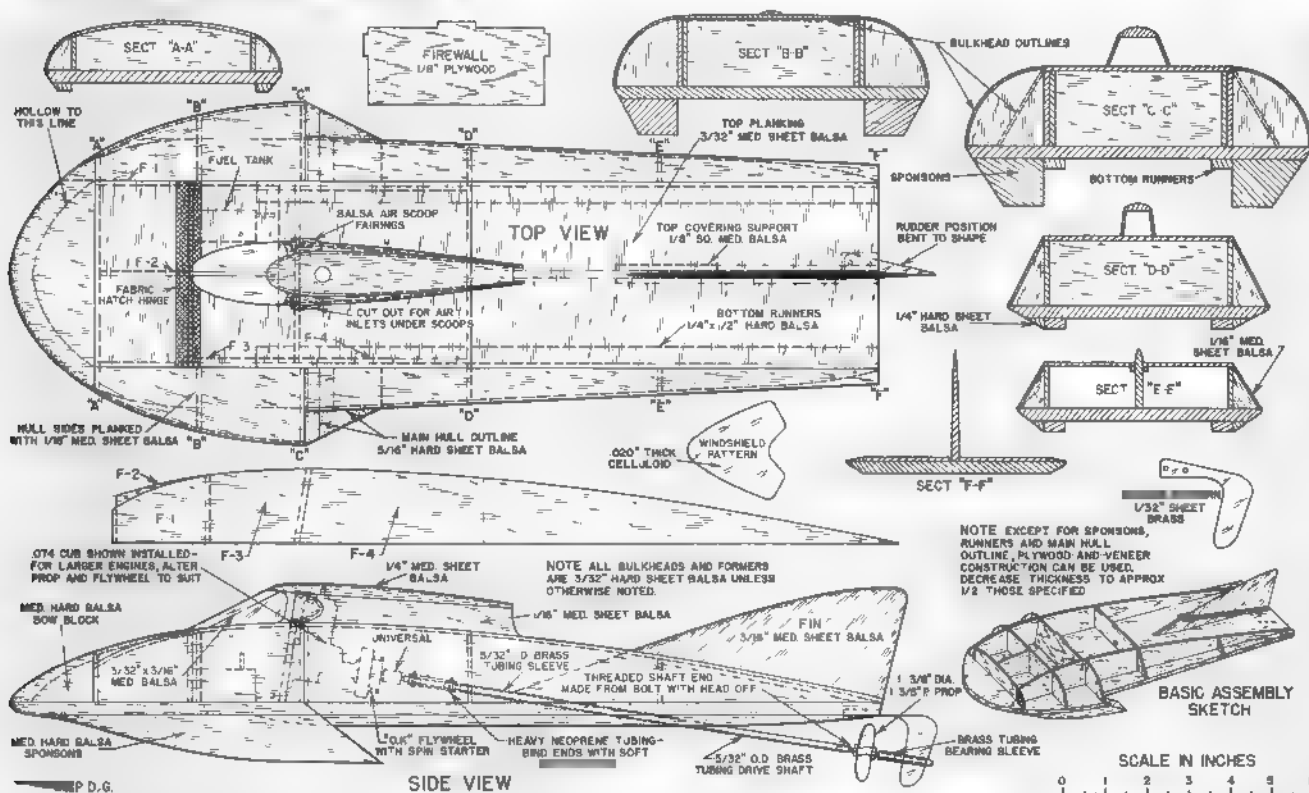
Construction is simple, as is evidenced by the basic assembly sketch on the plans. The original model was constructed primarily from balsa wood, but if you prefer hardwood and veneer construction decrease wood thicknesses to approximately half of that indicated.

Begin construction by cutting out the main hull outline from 5/16" hard sheet

balsa. The bulkheads and formers are all cut from 3/32" hard sheet balsa with the exception of the firewall which is from 1/8" plywood. The fin which is cut from 3/16" medium sheet balsa is air-foil shaped above the top covering supports, that are glued to its sides in the position indicated.

It is very important that care be exercised to correctly and identically shape the sponsons and the bottom runners, the hull bottom being most critical with respect to efficiency. Once the sponsons and bottom runners have been cemented in place, it will be a fairly easy matter to bevel the edges as indicated to obtain the desired angle of dead rise. However, it is worth remembering that obtaining the exact angle is not nearly so important as being certain that there are not bumps or crevices remaining when the hull bottom is considered complete, as they are more apt to cut down performance.

At this stage of the construction it is perhaps best to install the engine of your choice as well as the fuel tank and the entire drive assembly. The size prop we used will probably be satisfactory for



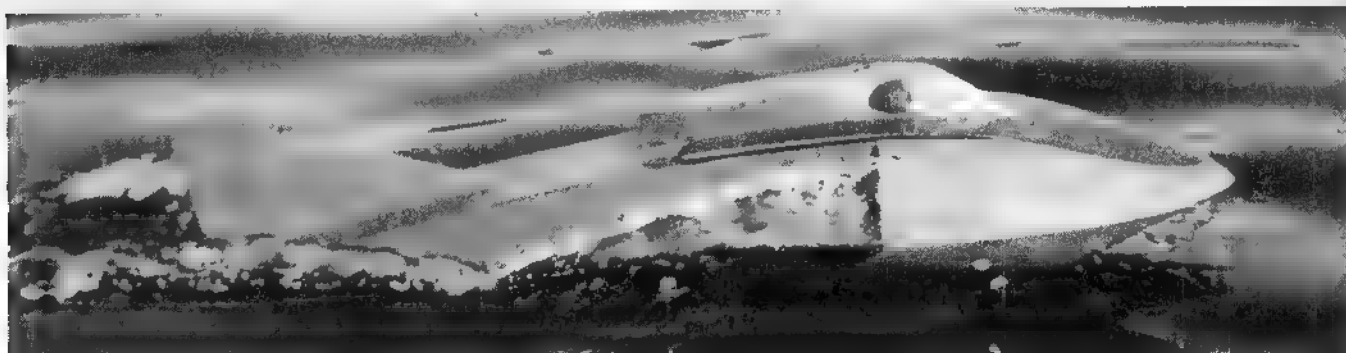
W.P. D.G.

SIDE VIEW

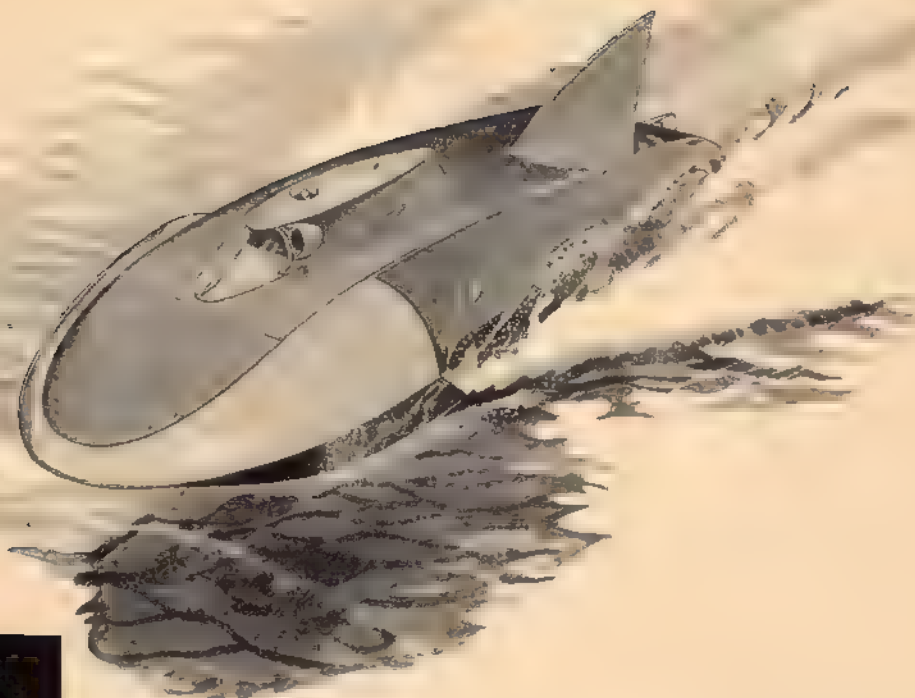
BASIC ASSEMBLY SKETCH

SCALE IN INCHES

0 1 2 3 4 5 6



By PAUL DEL GATTO



Water Warrior

Free-running racing-type model speedboat requires no special building skills or hard-to-obtain frills; construction is easy, so let's start in right now!

engines up to .09, but it may be necessary to use a slightly larger flywheel. If the engine to be used is still larger, it may be necessary to use a $1\frac{1}{2}$ " dia., $1\frac{1}{4}$ " pitch prop. If there are manufacturer's specifications available use them as a guide for making your selections. Test-running the boat will undoubtedly lead to further modifications.

Once the engine and drive installation has been completed, the hull side and top planking are then added. Cabin and engine cover canopy is constructed right on the hinged panel which extends from section "B" to section "D". Note that in a canopy such as we have, the air inlets are very important and should be made large.

Final stage of the construction is to shape, hollow and cement the bow block in place. Your boat is now ready to have a slick finish applied to it. Begin by filling in all the cracks and crevices with plastic wood or balsa and when thoroughly dry smooth out to blend in with the desired lines of the boat. Next apply one to two coats of wood filler—or "undercoating" as it is sometimes termed.

Sand gently between coats to remove score marks and roughness of finish.

Two to three coats of clear dope are applied. If the boat is to have a natural finish apply an additional three coats or more, gently rubbing down with fine sandpaper between coats. For a colored finish, brush or spray on three to four coats of the pigmented dope and then add whatever trim scheme you desire. When thoroughly dry rub down the finish with a fine rubbing compound until the model has a high luster.

For test-running the boat select a day when the water is pretty smooth so that you might better observe the boat's reactions in motion. Two important things to remember: 1) when the boat is not in motion, running the engine with the hatch closed may eventually cause it to cut out (it would be well to remember this and leave the hatch open slightly until the time of launching), and 2) when you are launching the boat, do so with the bow out of the water so that the craft will get up on the sponsons almost immediately even with a small displacement engine.

Full-size plans for Water Warrior are part of Group Plan #755, Hobby Helpers 770 Hunts Point Ave., New York 59, N. Y. (50c)





HOBBY MODEL WORLD

If you're interested—and who isn't?—in model cars, planes and boats this is your section! We pay \$10 for pix.



A jolly gent from Japan, K. Kokubo-san, provided these action shots of Eureka's 8' DC-6B kit job. Scaled 1/20th, 59" length, flying on four Enya .19's. Scale shock absorbing gear.

DOPE CAN

■ Eva Biddle, sharp-eyed contest coordinator for the Academy of Model Aeronautics in District III, spotted an inconsistency in the new 1955 rules and specifications booklet for the PAA-Load event. (Copies of said booklet, by the way, are available without charge from the Educational Director, Pan American World Airways, 28-19 Bridge Plaza North, Long Island City 1, N. Y.)

Free flight Paaloaders who have copies of the booklet will note that under rule #10 on page 17 the first sentence says that the total weight of a model must not be more than 7 pounds. The next sentence says such a model must not be less than 7 pounds! Confesses George Gardner, PAA's EduDir, "The only thing wrong with Rule 10 . . . is that the sentence which pretends to be quoted from A.M.M. rules and specifications requires exactly the opposite of what we intended . . . we managed by some inexplicable feat of absent-mindedness to make it 'less' instead of 'more,' thus perpetrating an error of exactly 180 degrees. No other rules book can lay claim to an inaccuracy so complete and symmetrical."

(While we're on the PanAm rules booklet subject we'll remind you again that the American Class dummy illustrated on page 20 should be labeled as 4 ounces, instead of 5.)

In ATH next month is a wonderful story on how Pan American World Airways got in the model meet sponsoring business in the first place. It's written by G.G. in collaboration with Dallas Sherman—who appears on next month's

HOBBIES-IN-ACTION

To give you a good idea of what type of entry we're seeking for ATH's H-I-A photo competition we're running these professional pictures by K. Mafune this month. With your entries in the contest send along complete photographic data. Tell us what camera and film you used, the exposure, lens openings, details on artificial lighting if any. Include data on negative and print exposure and development. Subjects can be boats, planes, cars—with or without people.

cover! As they so frequently say in the magazine business—place your order now to be sure of your copy. To that we add—no free fighter can afford to be without a copy of the August issue of ATH.

Getting the Record Straight. We've been asked to pass along to you a couple of corrections anent the full-size plans for ATH models. Don Brogini's fine R/C Skydelta in the May issue was labeled as being on Hobby Helpers' plan #455. Not so. It's on HH's plan #555. Incidentally, that's about the best flying delta we've ever seen; if you have any inclinations in that direction—if only in the future—get yourself a full-size drawing and file it away now while it's still available.

Another error popped up when the editorialists stated that Musciano's Douglas C-47 (DC-3) control line scaler was available on full-size plan #1249—that should have read, #1254. Don't get mad at Hobby Helpers for these lapses; the errors were made in ATH's office. There's no secret about how plan numbers are arrived at. Last two numerals indicate year of the issue in which the plan appears in print; this is July, so plans for models from this issue will have "55" at the end. Since July is the seventh month of the year, the first numeral is "7"—making the plans #755. Thus the Twin Bonanza, Water Warrior and R/C Eliminator will be on Hobby Helpers' Group Plan #755.

Funny thing, though, about plan numbers. Hobby Helpers report that plan #255 (for models in the February, 1955 issue) is being ordered as "225." We couldn't spot any errors in our listing, or in HH's ad. Do you suppose scores of folks just naturally made the same error and transposed the same numeral? Plan #255 has the Chase C-122, R/C Mini-

Missile and Hollinger's Cub floats, (we repeat just in case an error was made in the listings somewhere!).

German Air Fan—WW I Model. John M. Colarusso (54 Walker St., Concord, N. H.) was mighty impressed by the feature "Incredible Aircraft of the German Luftwaffe" in the last AIR PROGRESS. And he's after a lot more detailed info on many of the aircraft. Wants to correspond with other enthusiasts and swap info and photos. His collection of photos is building up nicely. Can anyone recommend any good books on the subject of Nazi aviation with some solid statistics?

Note to the Clubs. General Motors has an extensive film library with more than 60 documentary movies available. Included are such offerings as "ABC of Jet Propulsion" and "ABC of Hand Tools." The latter, incidentally, is GM's most often shown movie. Free distribution is made by General Motors Corp., 1775 Broadway, New York 19, N. Y. Have the civic or service club that sponsors your activity write for info. Films also go out to schools and churches.

The American Film Assembly awarded its "Oscar" to the jet propulsion movie as the best documentary in the science category!

Rochester Boaters, Achtung! Duane Rickner and Irving Barr, who can be reached at 55 N. Union St., Rochester, N. Y., are a couple of avid R/C boatmen (model style) who want to join forces with fellow enthusiasts.

Mighty Big Meet in Mass. The 4th annual Berkshire model plane meet for control line craft is scheduled for Pittsfield, Mass., on July 10 under the sponsorship of the Flying Maniacs and the Exchange Club. Robert L. Elliott has all the dope at 48 Curtis Terrace.

Mr. R. Sciarra, who's a commercial photographer in Pittsfield, advises us that last year the affair was New England's largest meet, drawing 10,000 spectators. R.S. read about some "unusual" practices of one club in scrounging prizes in these columns recently. He says that the Flying Maniacs have licked this problem by preparing a 2c postcard to accompany each prize. The winner is required to put his name and address on the card which is then mailed by the meet management to the prize donor.

Mr. Sciarra also passes along some good ideas suitable for other clubs. "Last year," he writes, "we raffled off a portable radio at the contest and we also raffled off those prize awards which were not suitable for our contestants. By doing this we were able to get quite a few new members into our club and after our contest the hobby shops did more business than ever!"

"One of the main reasons we have our contest on the first Sunday after the 4th of July is that the July 4th parade is a big thing here and we make a big float featuring the coming contest. Last year we won first prize with a display showing model planes and also a jet engine that we would start every 45 seconds and let run for 15 seconds. We were certain that with all that noise anyone who saw the parade saw our float . . . also, we had two pretty girls on the float throwing penny gliders to the crowd."

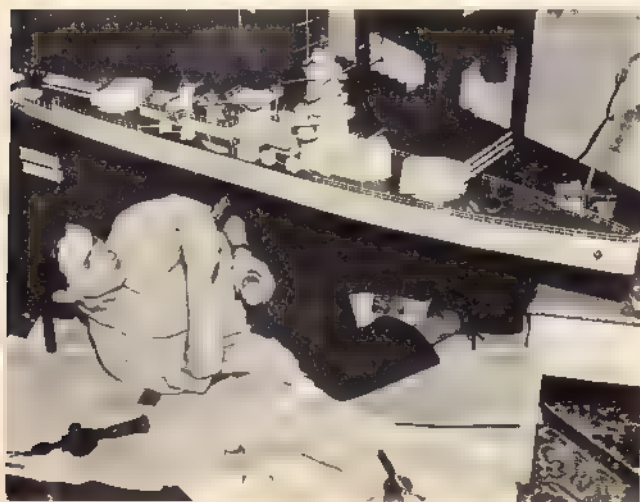
This year's Flying Maniac float will exhibit a series of scale models tracing the progress of flight from the Wright's plane up to jet and rocket craft. Yes, they'll be running the Dyna-Jet again and also a rocket engine! Incidentally, if your club should ever operate a float like that but your city fathers frown on running a jet engine on the float, get one of your hi-fi friends to cut a record of the Dyna-Jet in operation, then amplify that sound via a loud speaker.

Maniac members have flown models every Sunday since last July. The club has a point system and come the end of next October a trophy and prizes will go to the high-point men. Whenever there are no summer Sunday meets within reasonable traveling distance, the Maniacs put on a club meet. Most popular events are team racing and combat.

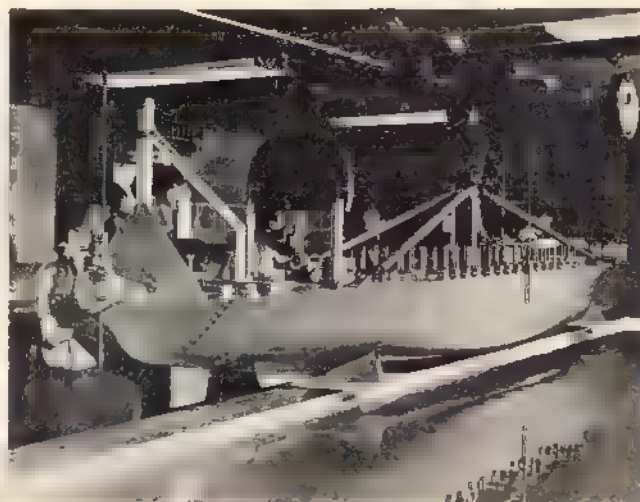
Reports Mr. Sciarra: "Our club isn't large, but we don't want to be a big club—we want to be a good club. Our official flying site is the Pittsfield Airport and the way they are cutting the full-scale flight schedules we may soon have the whole place to ourselves."

(Now there's something for the full-scale industry to ponder—and we mean that major portion of the industry that has never done anything for model aviation.)

Big Blast From Cleveland. There's nothing we enjoy more than reading somebody else's mail. We don't mean that we go around poking in mail boxes and



Gunther Loebell, 17, Holstein, Germany, and his 8-foot, 30-pound, R/C working model of battleship "Graf Spee." Xmr: rear right.



Members of Stevens Institute of Technology staff view 20-foot scale model of Essex class airplane carrier used in stability tests.



Experimental hydrofoil boat displayed at Baltimore boat show was part of Navy exhibit. Theresa Rayha gives it once over.

opening letters—but some of the copies of letters that are sent us are real intriguing. Take the following epistle from Charles "Chuck" Tracy, aviation editor of the Cleveland Press, former championship modelplane builder and big booster for air-modeling in his area. This letter was directed to Thomas G. Lanphier, president of the National Aeronautic Association, parent body of the Academy of Model Aeronautics. Mr. Lanphier, incidentally, is a vice president of General Dynamic's Convair firm. Chuck's letter:

Three local aviation organizations, that I know of, have been solicited by (the) Academy of Model Aeronautics to donate \$100 for awards in the National Championship Model Airplane Meet, Los Alamitos, Calif., in July.

Each has asked my advice and although I'm an Academy leader member and contest director, I've recommended that they do NOT make such donations.

Two of the three organizations do not have that amount in their treasuries. The third, the Cleveland Coca-Cola Bottling Co., which the Academy did not ask directly but requested one of its leader members to approach, is a sponsor of two major regional air meets here.

Air meet sponsorship by this company was developed and encouraged through my personal efforts. The company has enjoyed the part it has played during four years of such sponsorship. However, its officials soon will consider themselves taps on model aviation's sucker list if they are continually approached for more funds.

I consider AMA's requests grossly unfair, unthinkable and in ridiculously poor taste. In my opinion the organization, holding itself before its members as a national directing body, has stooped to a new smallness even to consider such small fry methods of financing the great National Championships.

Asking a small Cleveland firm, already overly committed to sponsoring two local air meets—either one of them approaches the size of the Nationals and the indoor meet greatly exceeds Nationals proportions—is a sure way to squeeze out a program that is outstanding . . .

Yet this misdirected fund raising Rasco is allowed to jeopardize good local programs throughout the country which actually provide the backbone for the Academy. The Nationals, being in California, will probably not be entered by any Cleveland, unless we can raise funds to send him there.

I think this is a disgraceful state for AMA management to be caught in and I appeal to you as president of NAA to take immediate and definite action to correct this situation.

There is absolutely no reason why a half-dozen leading aircraft manufacturers—Convair, Lockheed, Boeing, Douglas, Bell, United, Grumman—do not set up a fund that will completely pay for the prizes and all expenses of the National Championships for the next five or ten years. Any one of the companies could do it.

The National Championships are by far the most important single, concentrated, youth program of direct benefit to the aircraft industry, the military air services, and government research agencies.

Air Trails HOBBIES For Young Men
I assume you read "Planes," the official publication of the Aircraft Industries Association and have noted also in "Aviation Week" the lamenting of your industry over the great shortage of engineers and the small numbers of engineers being graduated from colleges.

You no doubt also are aware that in Russia great efforts are made to carry out youth aviation programs including model airplane building and flying.

Look at Boeing's financial statement for 1954—look at Convair's—and then tell me honestly why it is that the greatest, most promising young men in the world are not given full, complete encouragement in a hobby so directly associated with the nation's future and defense.

You nor any other aviation executive can provide anything resembling an adequate answer for NOT COMPLETELY FINANCING the National Championships, even to the extent of airlifting every young man who can qualify, plus all of his modelling equipment, to the Nationals from any part of the nation, because there is no reason why your firms shouldn't do it.

Look at all the windy discussions in and out of print on the young man's attitude toward flying—and aviation generally. Everybody talking—nobody doing much about it. Why don't you start?

There has never been strong, complete support for this National model airplane contest. It has existed and grown to what it is today, largely by begging among its poor but avid followers, just as it is trying to do in the cases I mention earlier.

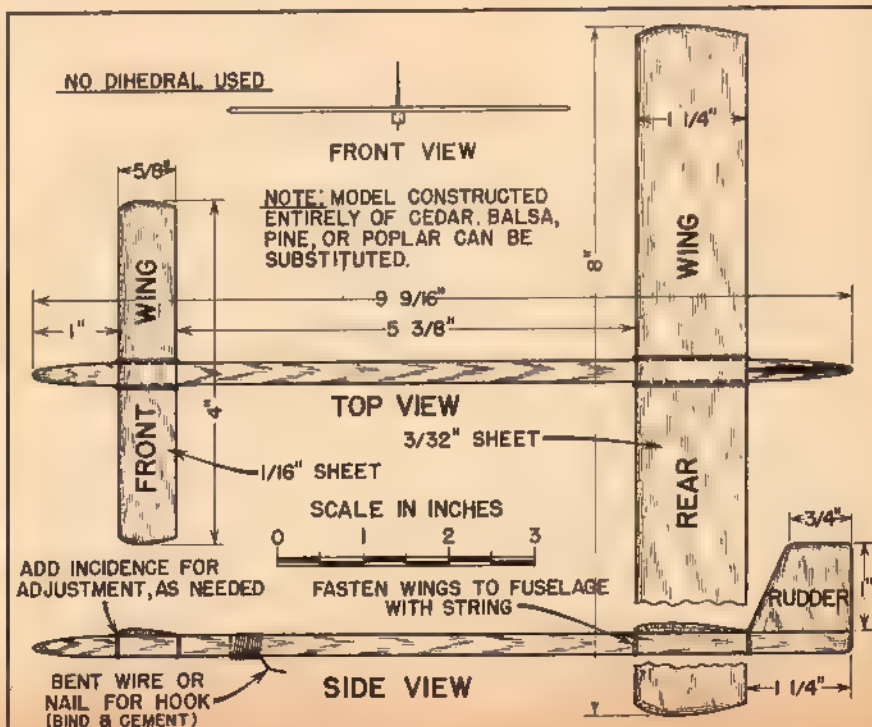
I say it's time an organization like the National Aeronautic Association, which has done feebly little in recent years in the way of real, concrete accomplishment, to put the model aviation program of the nation on solid

BAMBOO POWER

Instead of the 6 or 7 foot limber bamboo pole usually used with this glider design (below), Joe Chaney of Bethel, Alaska, reports his fellow modelers utilize willow branches. A six-foot string is tied to the willow with a closed wire hook at its end. Attach line to glider hook, haul back bending the willow, let go and—ZOOM! Joe says only trouble with this type of flying is that too many winning planes "go over the hill!" and are never seen again.



Working landing gear on P-47 is pride of Norman Robinson, member of Kentucky Air National Guard. Has won many meets.



MOST REALISTIC MODEL-\$25.00 AWARD TO WINNER



This completely detailed non-operating sport fisherman is 25" in overall length (including pulpit), has every detail above and below decks including complete sets of controls in wheel house and on the flying bridge. James L. Perry, Riverside, R. I. turned out "Hoboe." Illusion of moving through water in photo obtained by attaching line from keel to branch

held under swiftly moving stream. Camera used by Mr. Perry was a Mamiya 6; film was Kodak Super XX; exposure was 1/16 at 1/250. Construction is pine ribbed and covered with a double layer of 1/32" sheet balsa. The figures seen in the pictures were made of clay, then painted with dope. Boat has white superstructure, red decking and green hull.

ground. I assure you the satisfaction and the results will pay off greater than from any other project you could touch.

Rather strong, but rather well put, we thought Mr. Tracy's sincere, thought-provoking letter. In but a few short days we were in receipt of a copy of Mr. Lanphier's reply to the Cleveland model aviation leader. This is the first "carbon copy" we ever received that was an original typing. Real class—Convair! Wrote Mr. Lanphier in part:

I have been unaware of the fund raising program you refer to and will explore AMA's reasons for doing so. Before talking to them, however, I imagine I can anticipate, at least in part, what their problem will be.

Essentially, it probably grows from the situation you outline in your letter, that is: despite the aviation industry's concern about the growing shortage of engineers, it is ironic that the aviation companies of the United States do not support a national model building program as one of the effective means for improving the situation.

I have been involved in the NAA program for a couple of years now and have been asking the same question you do, but get no satisfactory answer. Within my own company, Convair, I believe you will find the sort of support you feel all aviation companies ought to offer this program. Last year we alone underwrote the international championships in New York, and this year we are contributing substantially to an over-all program to improve the financial structure of the NAA itself, and the National Aviation Education Council which is now associated with it. It has, frankly, not

been easy to persuade other companies to join the cause, but we keep on trying . . .

Full credit should go to Convair for the wonderful work it has done for model aviation and for what it is currently doing to aid the overall aviation education field. And a sincere pat on the back to Chuck Tracy for laying it on the line so clearly and succinctly. Along these same lines ATH has prepared a small but potent folder titled "Model Building and its Importance to America." This tiny pamphlet is being included in thousands of plane, boat and car kits distributed by leading American hobby manufacturers. Among the subjects covered in the MBAITA folder are "Why America Needs Modelers," "Modelers Make Better Citizens," "Model Builders Get Ahead Faster," "Some Famous Modelers Past and Present," "Once a Modeler Always a Modeler," and "Community Support for Model Building." Attached to the pamphlet is a special reduced-rate subscription offer coupon which can be detached if you want to pass the leaflet on to school or civic authorities. If you would like one or more copies of this powerful little message just send along a request to us at ATH. There's no charge.

Hobby Items in the News. This one's about a company—Sterling Models of Philadelphia. Concern has expanded greatly (as you might gather from all the new items presented in their ads)

and so has moved into new quarters. Official release states: "We have purchased a 45,000 square foot building in which we will expand our activities so that we can give you even better service than heretofore. This will also enable us to increase our activity and make possible many (new) projects . . . please note our new address—Sterling Models, Belfield Avenue & Wister Street, Philadelphia 44, Pa." We extend our congratulations to Ed Manulkin and Pete Timchal and all the Sterling folks.

Briefly Noted. Rober L. "Bob" Hatcheschek, well-known Wakefield model tender and free flight winner, formerly assistant Markets Editor of the metals magazine "Iron Age," has joined the public relations staff of Reynolds Metals Company. An engineering graduate of Ohio University, Bob won membership in Tau Beta Pi, national engineers' honor society.

Robert Brawley, Box 25, Rockport, Calif., is looking for a needle valve for his Fuji .099 made (he says) and bought in Germany. Engine has two needle valves. Can anybody assist R.B.?

A. P. Gall, 1109 Cambria St., Portage, Pa., has been trying to obtain a Campus A-100 CO₂ engine for use by the model-plane club which he supervises at the public school where he teaches. You got?

Spanish Meet. During a recent visit of units of the U. S. Navy's Sixth Fleet to
(Continued on page 85)



William Freitag, St. Clair Shores, Mich., finishing up model convertible sports car for 1955 Fisher Body Craftsmen's Guild event.

Original design semi-scale WWI Jenny capable of full stunt pattern built by Bill Jones, Norwood, N. J. Fox .35 engine.



IT'S THE FINISH THAT COUNTS—PART VII

Dramatic Displays For Your Plastic Models

Since this series was launched in January we have had some of the country's top experts tell us how to apply finish to model cars, boats and planes. And the model craft we've been "covering" have included balsa and hard wood miniatures, built-up and solid structures, paper, fabric or wood veneer covered. Now that you have been instructed in the "how" of good finishing, we wanted you to see how very much more appealing is a small model when presented in a suitable setting or "frame." One great advantage of "mounting" a model is that it gets much less handling and as a result is apt to last a lot longer. For some reason most people (even the very small fry) will show a lot more respect for that PT boat attached to an ash tray-lamp base than if it were by itself.

Photos by REVELL, INC



Maybe dad in his young days drove a Locomobile tourer like this. Model is now available. Pipe stand decoration for his birthday is sure to please.



Plants and cars have an affinity, both suggest open country and travel. British Rolls-Royce (left) and French Renault (right) flank leafy plants.

Model T Ford sedan before a wintry mountain scene makes an attractive display and it's easy. If not artistic, background can be obtained in local art store.



Top of plant stand serves as roadway for 1870 horse-driven chemical & ladder fire wagon. Dash of realism achieved with Dalmatian — known as the fire house dog.



Nautical motif. PT boat in full battle dress contrasts sharply old-time ship's running light. Attractive setting is an ashtray. Old lantern — ship, railroad or coach — can be obtained at antique shops and sometimes in junk yards.



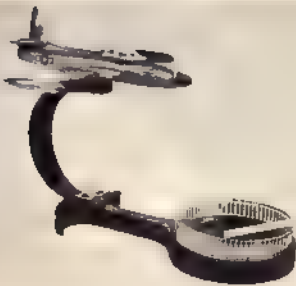


1908 Buick lends interest to bottle-lamp stand. This grouping with exception of shade and electrical fixtures is found around house. Many beverages come in interesting bottles fine for lamp bases; electrical fixtures to fit are available in novelty or electrical stores.

Apple "bonbonnière (candy bowl) serves as focal point for a 19th century steam pump from one of Revell's kits. Just one of many ways to ingeniously use models.



Scale model airplanes (above) are glamorous additions to prosaic objects. Plastic Cutlass artfully mounted on ashtray in attitude symbolical of its aggressiveness.



Lockheed's F-94C Starfire interceptor adorns ashtray. With little originality and handiness plain objects easily attain custom-made look at small cost.



Book-ends lend themselves well for display of plastic models which can be varied according to types of books. Stutz Bearcat and 1904 Caddy ideal for automotive library.



If you are a boat enthusiast Revell's Chris-Craft in shadow box (above) makes a fine addition to the den. Mirror at back adds depth to display. Wave effect from blue cardboard.



Want to display your models on the wall away from menaces like the cat? Staggered shelves give illusion of early Cadillacs and Stutz Bearcat climbing hill.



Amazing how many objects become interesting display. Woven-cane jacketed bottle once contained French or Italian wine; the circular track is styrofoam plastic. Car with buggy wheels is Sears Touring Buggy; also 1910 Ford, Stanley Steamer



Atomic sub "Nautilus" sails unconcernedly past underwater rock (above). Sand and wire add to authenticity of the scene, which can be heightened by enclosing in a glass or plastic case. To dust your displays, a soft paint brush is recommended.

Everything YOU WANT IN AN
ALL-PURPOSE FUEL FOR STUNT, CONTEST,
OR JUST-FOR-FUN FLYING





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"Gazistor"

GAS TUBER & TRANSISTOR R/C RECEIVER

Take one XFG-1 or RK 61, add one CK722 transistor and you've a very sensitive, very stable job for radio controlling

By

WELLS E. BLISS

■ Here is a receiver that will eliminate relay adjustments entirely. The receiver differs from the conventional single gas-tuber in that it uses a transistor as a second stage, which idles at low current, the latter rising with signal.

The first tube can be either an XFG-1 or a "long life" RK61. If you want to utilize one of the older RK61's, you'll need a lower L/C ratio (less turns of wire in L and more capacity across it) and the idling current will be higher. The receiver is very sensitive, and seems to be more stable than other gas tubers; a single XFG-1 was used for a full flying season, with only a slight increase of idling current as it aged.

Various makes of "PNP" junction transistors have been tried, with much the same results; one thing noticed, though, is that all transistors are different. The circuit shown should do for most of them, but adjustments for every individual transistor are easy to make. In any case, the lowest plate current change that has been had was 2.3 ma., with the average around 4 ma. The base is shown here in full-size drawing.

By following the steps listed below you can wire the receiver up in the quickest possible time: 1. After base has been drilled and eyelets installed, wind coil and connect 6.8 mmf. condenser across the lugs. Mount coil, flea clips and 25K pot. on chassis. 2. Solder wire to transistor flea clip 3 (the group of 3

clips in center of chassis) and run to eyelet 3. 3. Connect 2700 ohm resistor from eyelet 3 to center lug of 25K pot. and solder latter. 4. Run the .04 condenser from outside lug of pot. to transistor flea clip 2. 5. Solder B plus lead to eyelet 3. 6. Solder 390K resistor to transistor flea clip 2 and run other end to eyelet 2. 7. Solder 1" length of wire to trans. flea clip 1. 8. Solder same length of wire to tube flea clip 2—other end goes to eyelet 2. 9. Run 2.7 meg. resistor from tube flea clip 3 to eyelet 2. 10. Connect one end of RFC to outside lug of 25K pot.—run other end to tube flea clip 1.

11. Solder ends of 47 mmf. condenser to tube flea clip 1 and to lug of L farthest from chassis. 12. Solder one end of 100 mmf. condenser to tube flea clip 3—bend other lead around lower lug of L. 13. Solder 10 mmf. condenser from lower coil lug to eyelet 1. 14. Mount relay as shown and solder wire from transistor flea clip 1 to the inner coil lug. 15. Solder one end of .01 mf. condenser to outside pot. lug—run other end to eyelet 2. 16. Solder short length hookup wire to other relay coil lug, run other end through eyelet 2. 17. Solder piece of hookup wire in eyelet 2, wrap other end around ground lug of relay (center lug



Author Bliss, a licensed radio amateur who holds call letters K21QL, is 34 and works as a senior process engineer at the Corning, N. Y., Glass Works. Mr. Bliss served in Navy 3½ years, is married, has a son W.E.B., Jr., 8. An active member of the Elmira-Corning "Flying Sparks" R/C club, Wells says his modelling career has been pretty much a local one, although he has won several times in speed and radio events in the Buffalo-Rochester-Ithaca area. Wells was bitten by the aviation bug in 1935, soloed in the '42 C.P.T.P. program, flew Cubs and Stearman's. At Leroy, N. Y., airport races where he assisted, Bliss met such famous pilots as Jimmy Mattern, Harold Neuman, others.

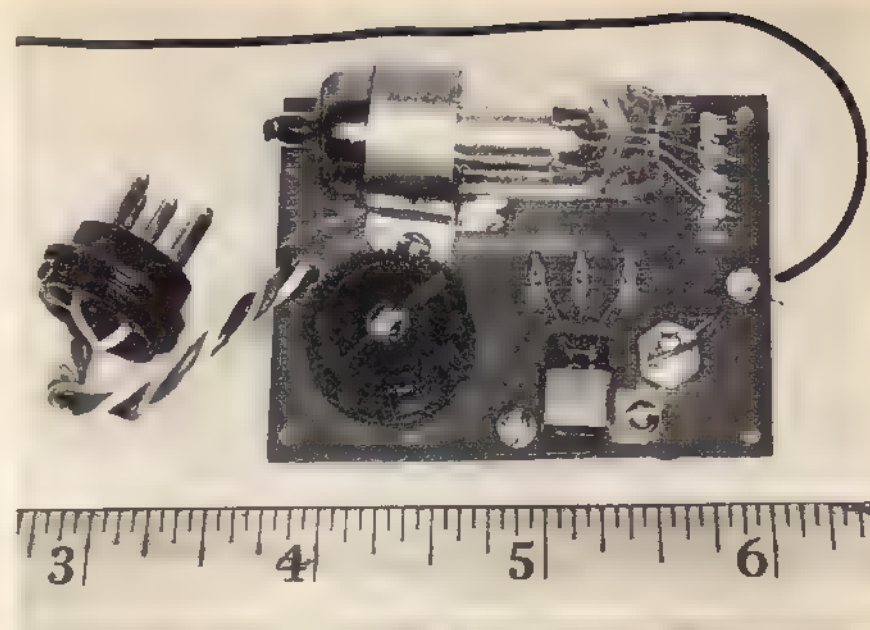
on contact end). 18. Solder A plus-B minus lead to relay center lug. 19. Solder A minus lead to tube flea clip 4, and another lead to top relay contact (latter for connection to escapement). 20. Solder an 18-24" length of wire in eyelet 1, for antenna.

The battery and escapement leads may be twisted together and run through a hole in the chassis (not shown on drawing) to help keep them from being pulled loose. If the above steps were carefully followed, your receiver is ready for test.

Place the tube V in its clips (be sure the red dot on tube is nearest clip #1) and apply voltages, with a low resistance test meter of 0-5 ma. in the B plus lead. Vary the 25K pot. till the meter indicates about .5 ma., then turn on your transmitter and adjust the slug in the coil until the meter drops to .1 ma. or less. If you can get this current drop as the transmitter is keyed, it is time to put the transistor in its clips (always open the receiver switch before plugging the transistor in or out).

Since individual transistors vary so much it is impossible to predict the exact results, but upon turning on the switch you should get a meter reading of from 1-3 ma. Adjust the pot. for the lowest reading—it should be from .8-1.5 ma. Upon keying the transmitter, this should increase to 3-5 ma, depending upon the particular CK722 in use. If you can't cut the idling current (no signal on) to 1.5 ma., the next step is to increase the 390 K resistor to 470K; it was found necessary to go up to 820K in one case. Of course, as you increase R2, a check of signal-on current should be made, to note to what value the current jumps. If the idling current is within the range mentioned, and you want to get a greater current increase with signal, you can reduce the 390K resistor a bit.

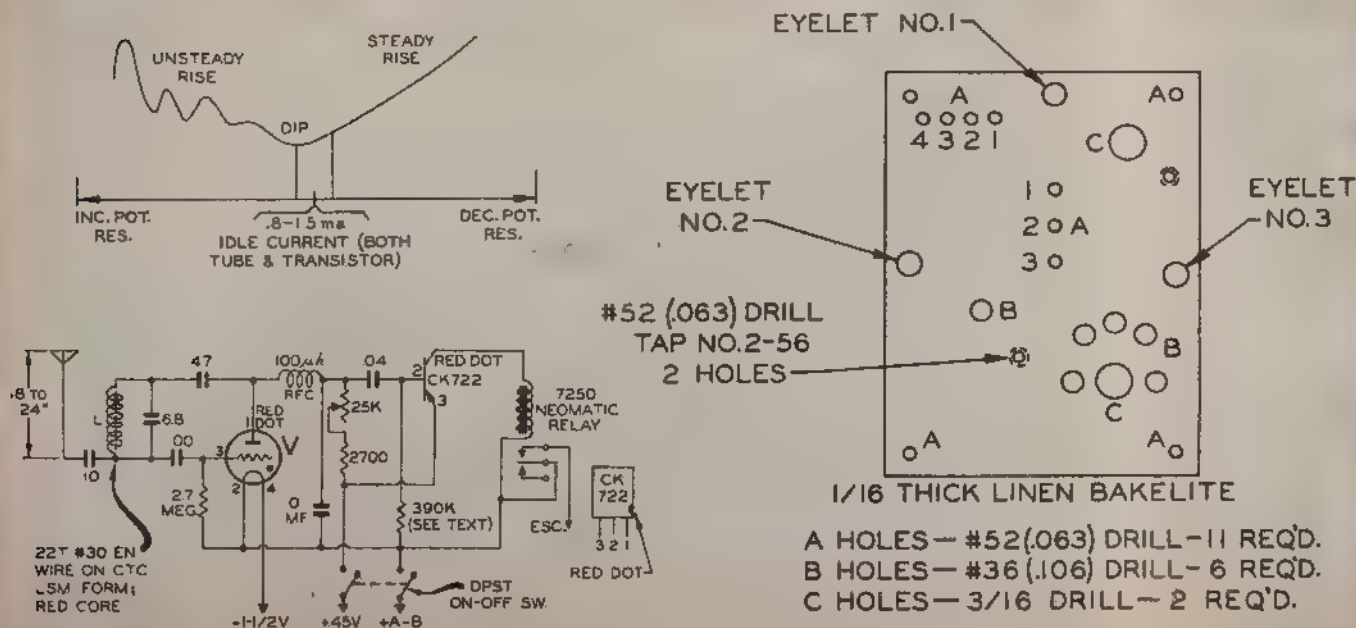
You can get a better idea of the ac-

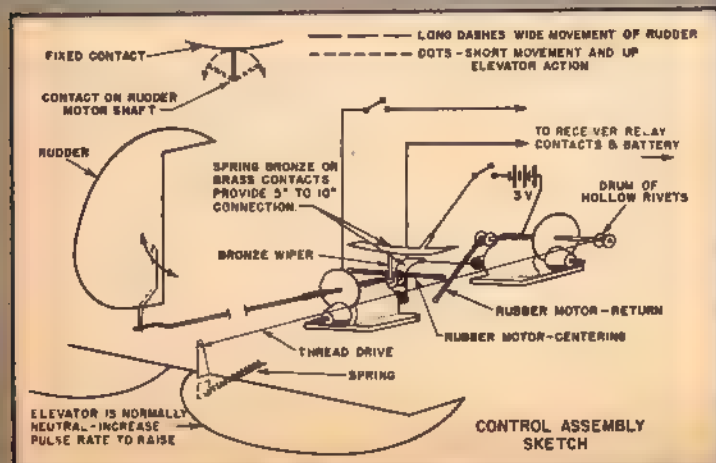
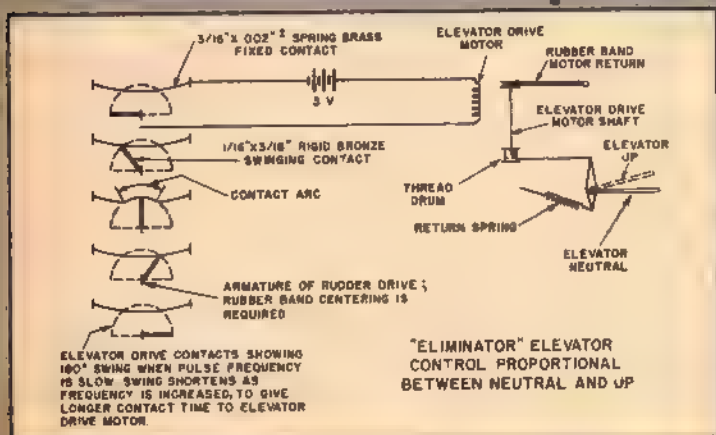
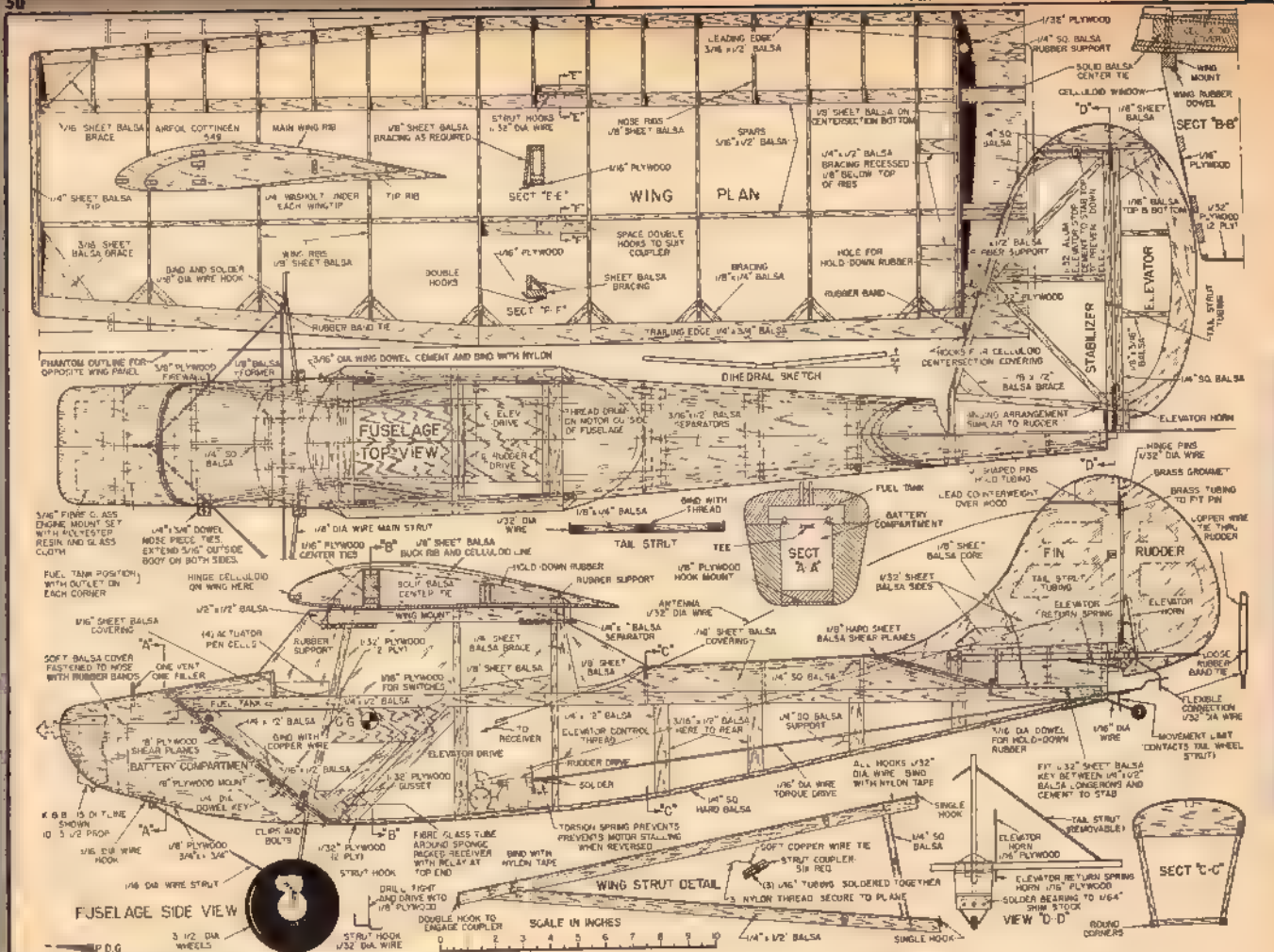


tion of the pot. by referring to graph; the upper line represents meter reading, with the point marked "dip" at about .8 ma. As you go toward higher resistance the meter reading will increase very unsteadily, but toward lower resistance you will get a smooth increase in current. Best pot. setting is just past the dip, toward the steady current side. If you are using the newer "long life" RK61 and find you can't get high enough idle current (on the tube alone), replace the 6.8 mmf. condenser with a 10 mmf. unit and retune the slug. This will cause the tube to draw more plate current. Be certain to install a DPST switch in the plane; unless both B plus and B minus leads are opened, there will be a steady transistor current which will run the battery down.

I hope this receiver will bring you as many hours of enjoyable flying as it has me, and at this point I would like to thank Louis Gauss for his unlimited electronic help in getting the receiver perfected, and to thank Charley Spear for his photographic abilities that have made this article possible. The pictures should help make things clear.

Parts required: 6.8 mmf. cond., CRL type TCZ; 10, 47, 100 mmf. condensers, CRL type BC; .01 mf. cond., CRL type DD; .04 mf. condenser, Aerovox type P83Z. RFC—National R33, 100 microhenry. 25K pot., CRL type B16; all other resistors 1/2W carbon. One gas tube, per text; one Raytheon CK722 transistor. Base board, 3 eyelets, 7 flea clips.





■ Beautiful day, let's go flying. Check the batteries, check plate current, distance check check and double check. All's well, pour in the fuel and away we go!

Left right—straight ahead . . . she flies like a dream. Oops. Missed a beat? Out of range? Escapement sticking? Batteries older than we thought? Interference? Something's wrong. Hard left rudder—but the panic button—call for another transmitter . . . too late!

Let's hurry over and look at the damage. Can't be too much, we hope. Oh-oh, total loss from the rear of the cabin door forward. Left half of wing splintered. Radio looks like a truck ran over it. B battery shot. Aw, what the heck, with 20 or 30 hours' work all will be ready again. Might make it by next week-end!

If all this sounds familiar and you don't like it, you might be interested in building the *Eliminator*. For me, this ship has eliminated most of my pile-in troubles—and believe me, I've had my share.

The ideas behind the design of this model were several. First, I wanted an airplane to survive crash landings; second, I wanted a near-scale model for appearance (no offense intended to you non-scale flyers) and third, I have very modest hopes of competing with Walt Good and others in the International Endurance contests.

After considerable thought, the plans as shown in this article were developed to take the "crash" out of crash landings. The nose assembly was made solid and rugged since it is usually the first part to contact terra firma. A shear plane was provided just aft of the nose assembly, at which point the rest of the body is attached. The shear plane surfaces are made of 1/8" plywood to stand the gaff. In a similar manner, the tail assembly is arranged to come off with ease, fore or aft. A large seat was provided for the wing in order to eliminate the need for dozens of

Eliminator

By JAMES V. REED, DC/RC Club

**SAFETY
ENGINEERED**

SEMI-SCALE

**RADIO CONTROL
ENDURANCE PLANE**

Sort of L-19'ish in appearance, Jim's king-size 6-footer can take real punishment and still keep right on flying!

rubber bands, which incidentally, often will not let go in time when the model is flying through trees or landing on a wing tip.

Further, by locating the heavy A and B batteries in the rugged nose section, possible damage to the batteries was reduced and damage to the body from flying batteries eliminated. In a last full effort to reduce crash damage, the plane was made as light as possible, (4½ lbs. flying weight) and the radio receiver (Walt Good's three-tuber in this case) was rebuilt in circular form and bottled up in sponge rubber and a fiberglass tube. No more radio damage. Also, by mounting the radio container at an angle and securing the sensitive relay on top of it, damage to the relay has been reduced to a minimum.

Now, as to my desire for a scale or near-scale airplane, I've had the bug ever since my first ship. I was adequately warned about the differences in aerodynamics between scale models and their parent counterparts; in short, they usually don't work worth a darn. Nevertheless, I proceeded to violate some of the ground rules, in the interest of scale appearance. The stab is small and the tail moment short, but I have been able to recover from all dives so far. The wing is average, making the finished job a little on the umbrella side. However, the whole rig has good wind penetration and gets off fairly rough ground at about 12 to 15 miles per hour. In short, I have found no objections to the semi-scale construction. A 10" chord x 5' wing would be near scale for this ship. I hope to try it someday soon. Should make a real stunt job.

The *Eliminator* should work out well for endurance. With a little effort, the weight could be whittled down to 4 lbs. by using Silvercels instead of dry cells for the rudder actuator, and by leaving out the elevator servo. The K. & B. 15 is a real workhorse and it pulls well with

Photos by V. J. Richter



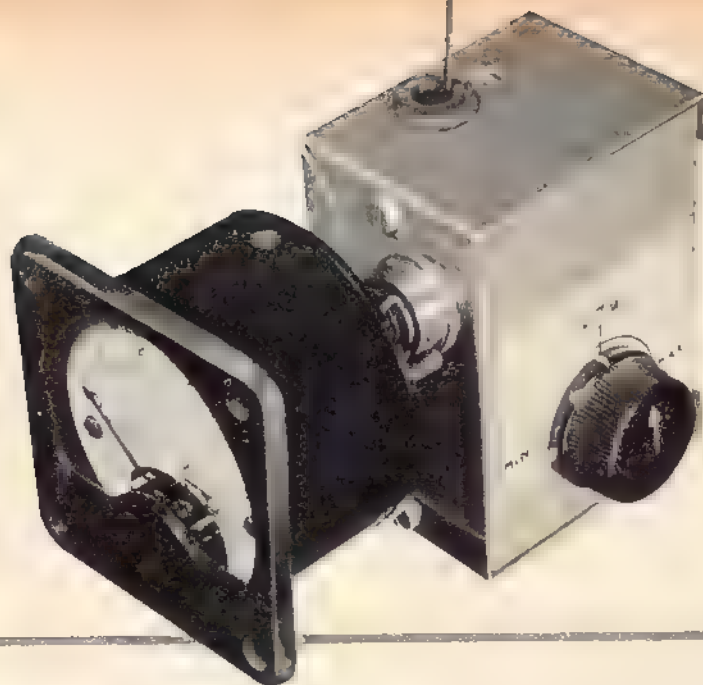
Framework of JVR's plane; upon impact it separates into half-dozen pieces. Receiver is "canned" for crash protection (see copy).

Tony Grishes' 10 x 3½ RC Tornado props. Fuel mileage is good too.

While other types of control would work well, I am a proportional man—have been ever since the 1952 Selinsgrove get-together when Howard McEntee demonstrated the ease and smoothness of operation in using a circular-magnet actuator. I use a Mighty Midget Motor made by Victory Industries, Guildford, England. This little fellow retails for \$3.50 in this country and \$2.50 overseas, less duty, etc. A real fine motor that always goes, and which produces terrific torque on 1½ volts (2 pen cells in parallel.)

I have had some luck with a semi-proportional neutral-to-up elevator, which is shown on the plans. A rheostat in the pulse box motor circuit gives elevator action by changing the pulse rate, thus shortening or increasing the rudder drive motor swing, and thereby increasing or decreasing the total elevator drive motor energy, to raise or lower the elevator. The elevator is spring loaded to neutral with just enough tension to hold position when upside down, and the drive motor is (Continued on page 55)

Pocket Size Field Strength Meter Adapter Utilizes Transistor



Most every R/C'er today uses a test meter to check receiver current in his plane, and the majority of these meters are probably of 0-5 ma. range. Such milliammeters can and have been used in field strength meters, but when they are, the FSM is not very sensitive, and has to be held right next to the transmitting antenna to get a decent reading.

One way to have a really sensitive FSM is to use a very sensitive meter—for example a 0-100 microamp unit—but one look at the price of such a meter will deter most experimenters. Moreover, meters of this sensitivity are not intended to be tossed in the tool box and subjected to the field abuse that an 0-3 or 0-5 ma. meter can take.

The availability of low-cost and efficient transistors makes possible another approach to this problem. In the "Adapter" shown here, we use the transistor as a DC amplifier to boost the current from a conventional FSM circuit. Referring to the schematic you will find the regular tuned circuit plus a diode detector D. Normally, a meter would be connected across the .001 mf. condenser, but here we go a bit further, and hook the input circuit of a transistor TR at this point. A small power supply consisting of two mercury cells, and a meter jack are about all the added parts you will need. No switch is necessary, since the battery circuit is open until a meter is plugged into the jack. Even with a meter in place, the current is practically zero, since the transistor draws almost no current until some RF is picked up by the tuned circuit.

If good low-cost high-frequency transistors were to be had, we could probably dispense with "D," but the economical transistors used here will only work at very low frequencies.

The unit works well on a single pen-cell, but the higher voltage used in the instrument shown gives better sensitivity. Mercury cells were utilized because of their extraordinary shelf-life; they should last several years in this unit, whether it is used much or not, since they lose only a small percentage of their total life when standing unused. Two of the "half penlight cells" could be fitted into the case, if the parts were rearranged a bit, and would give very good service.

The lower the full scale reading of the

meter you use, the better will be the overall sensitivity, of course, and any ma. meter will work with the unit, but it is wise not to allow the current to go above 5 ma.

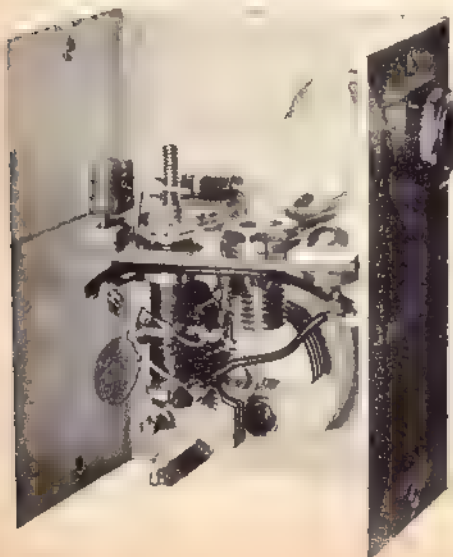
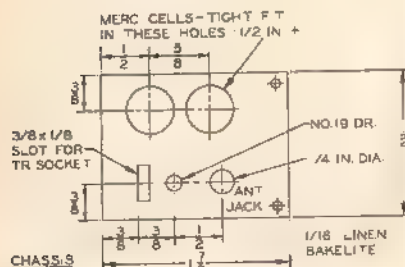
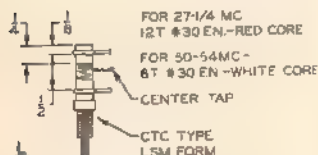
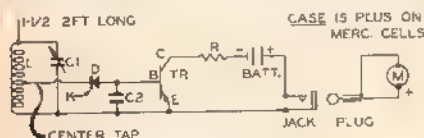
If you want real super-sensitivity, you can use a better transistor to get it, but the cost will be higher. For example, a 2N34 transistor will give just about ten times the sensitivity of the RR115 unit we show. But use of the latter will still give about ten times the sensitivity that you could get with an 0-5 ma. meter directly across the .001 mf. condenser, as in the usual FSM circuit. Of course a 0-500 microamp meter will also give ten times the sensitivity of a 0-5 ma. meter, but few modelers use a meter like this to check their receivers! The extra parts over those you would need for the normal FSM, and including the transistor, total about \$4.30—considerably less than you would have to pay for a meter good enough to afford the same sensitivity. If you have any doubt that the transistor is working, connect your meter temporarily in series with the base lead of the transistor; a few readings will convince you.

Parts layout in the little case is not at all critical, and a smaller or larger case may be used, as you wish. The one we picked doesn't take up much space in the tool case, though, so the unit is always on hand in the field—which is not the case if we have to carry a larger and more fragile FSM with a built-in meter. Most of the parts are mounted on a bakelite chassis, which is held in the case by an aluminum angle clamped under the single circuit jack. The tuning condenser is the only other part that is attached to the case. All wiring is done on the chassis before it is mounted, then two leads are soldered to the condenser and you are ready for business.

The tuned circuit is set up so that you can cover either 27½ or 50 mc., depending on the coil used. See Fig. 3 for details.

The transistor may be soldered right in the circuit; however, we used a sub-min socket for it, since we wanted to check a good many of them. If you do solder it in, hold the lead you are soldering with a pair of long-nose pliers right next to the transistor case; this prevents the heat of soldering from reaching the

(Continued on page 84)



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Carved balsa fuselage bi-plane, prefabbed for easy assembly. It's control-line. A real value!**SPORT RACER \$1.50**SPAN: 18" For .020 to .074 Eng.
Good U-Control performer at a remarkably low price. Completely prefabbed kit. Easy to fly**WACO CABIN \$1.50**For .020 to .049 Engines
Imagine! Carved fuselage biplane "beauty" for only \$1.50. Prefabbed for U-Control.**LITTLE MERCURY \$1.50**SPAN: 18" For .039 to .074 Eng.
U-Control carved fuselage model. It's completely prefabbed. A cinch to assemble.**NEW!**

Here's B-I-G money-saving news for all 1/2A fans! Four (4) brand new U-Control sensations... with 18" wingspans... priced at a tiny \$1.50 each. They've just been released—all authentic scale flying models. Every single kit is prefabricated for quick, easy assembly. Each contains Jim Walker's U-Control, a carved balsa fuselage, airfoiled balsa wing, metal cowl... and all parts formed, cut or shaped to practically fall together.

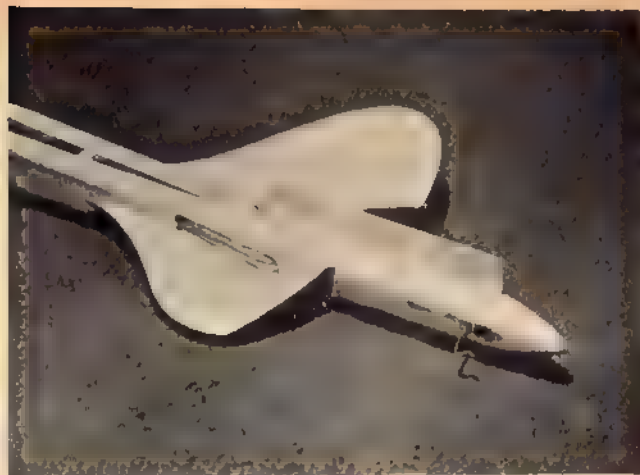
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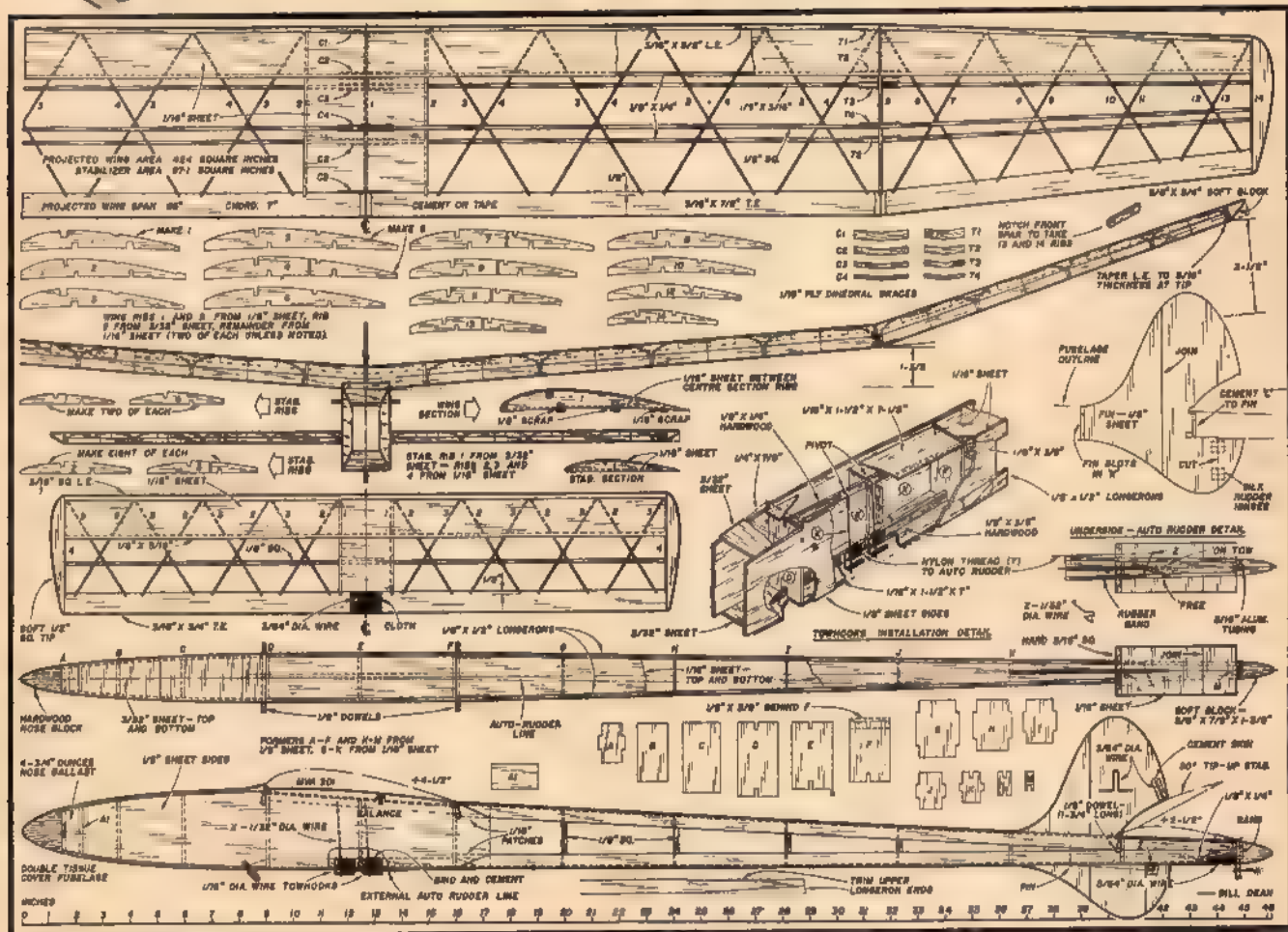
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"EAGLE" TOWLINER

By
BILL
DEAN



Underslung "auto-rudder" and the dethermalyzer's rubber band tube show up well here. Rudder is flat on table in this photograph.



Uncovered framework weighs but 8½ oz. Nose ballast of 4¾ ounces and tissue covering of 1¼ bring flying weight to 14¾.

■ Latest in a series which started with the writer's *Chief* (S. African Nats winner and New Zealand record holder), the *Eagle* design was finalized after an extensive study of trends and field techniques, which culminated in a visit to the World Championships at Bled in Yugoslavia.

A rugged "all-weather" layout was considered essential, since the flimsy long-fuselage/small-stab types often come "unstuck" in anything but ideal conditions. Geodetic surfaces were used to eliminate trim changes occurring in damp or very hot weather—as well as for this structure's unbeatable strength/weight properties. The well-proved MVA 301 section was chosen for the wing, from both constructional and aerodynamic viewpoints. An ultra-simple fuse-

(Continued on page 59)

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Why Not You?**

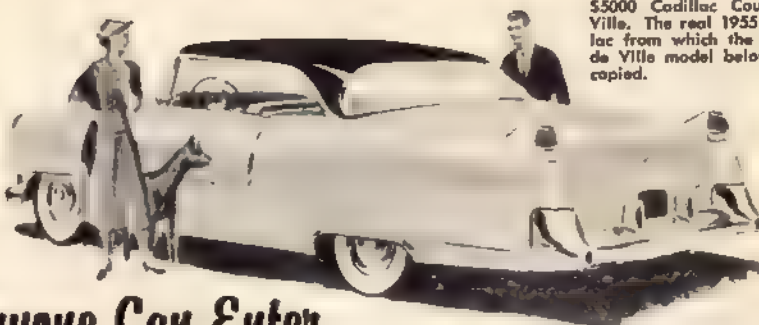
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Contest Closes July 31st



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packed in each kit. Note that you don't have to build a model for this is not a model building contest. Just finish this sentence—"I like the Monogram all-plastic Cadillac model because—" That's all! Hurry to your store now. Take mother and dad along. Let them help you win a glamorous \$5000 Cadillac.



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Eliminator

(Continued from page 51)

rubber band loaded to return to neutral. One shortcoming is that the rudder must be operating in neutral for the elevator to operate.

A few words about construction of the fuselage. Each side panel is pinned and assembled flat on the layout board over the plan, wood sizes as indicated. The forward 1/4" plywood shear plane is cut out and left a little large all around to allow disk sanding later on. The two side panels are glued to the scribed lines on the plywood. Finishing off the rest of the body is only a matter of cutting and fitting the 1/4 x 1/2" and 3/16 x 1/2" separators. The curved top section behind the cabin is 1/16" balsa warped over the formers. Hand-pick the wood for this to get a smooth curve. That portion of the tail assembly which is part of the body line should be constructed while it's spot-glued to the fuselage, in order to obtain a smooth continuous line from cabin to tail. Note that the stab is adjustable for trim, independent of the elevator. This construction requires building the whole tail as a single unit. No covering is provided over the center section of the stabilizer. The rudder size has frightened a few people, but the spring-loaded arrangement imparts just enough energy to do the job. Sharper turns in flight can be made by tightening the rubber band rudder linkage ties which hold the lower ends of the 1/32" flexible connectors on the rudder. This type connection requires that the rudder be counterbalanced to float level with the fuselage held at any angle.

The nose assembly is straightforward

except for the motor mount which is 3/16" polyester resin-impregnated fiberglass set in place with polyester resin. 1/4" plywood should do about as well. If the fiberglass is used, I would suggest 3/16" or 1/4" through dowels, for a good bond to the balsa. The elevated gas tank requires starting the engine immediately after filling, or your fuel winds up on the ground.

The battery department in the nose section was first fitted with a plug and jack that made disconnection easy, and was expected to allow the nose to pull free in a crash. It did not work out this way, though; it was found that the wires usually tore off instead. So two sets of three pins were added to the sides of the nose and fuselage, and connections made between them by stiff wire springs (if put inside they would probably stay cleaner). This system allows instant disconnect, and also makes it easy to check the battery voltages.

The wing too, is simple, with no special notes required. The wing struts are attached in a manner which allows knocking off either to the front or rear. Struts are not required except for violent maneuvers. They can also save the wing should the plane flip over on its back when landing or ground looping.

The whole plane is covered with lightweight Nylon. I used three coats of clear butyrate brushed on, and two coats of colored, sprayed on.

After the plane is completed and ready for its first test glide, keep in mind that it is very light and equipped with a big high-lift wing. A gentle push from knee height is in order or you might wind up in a stall 50 feet up. (I did). If you use the struts, expect them to break on occasion; they are the only really fragile

parts of the plane. A little glue, a couple of pins and a tightly wrapped rubber band, and you should be back in business.

My flying experience with this model has been extremely pleasant. ROG's in particular are very smooth. Landings on smooth ground tend to be bouncy because of the highly efficient L. G. design.

Model Boating

(Continued from page 14)

"pipe" the light from it to the required outside points via lucite rods. The rods conduct the light along with very little loss enroute, but the ends of the rods glow as though each one was a little bulb itself. The rods may be bent as required by heating in hot water (avoid sharp bends which will allow the light to "leak") and the ends can be ground to lens shape for more realism, and colored if you want to simulate running lights. The inner ends of the rods must point toward the concealed bulb, of course, and be very close to it. A dozen or more rods can be operated from a single bulb, since they just utilize the light that would be wasted otherwise.

Commercial Offerings. In addition to the well-known Cameron .09 marine engine, which has a water-cooled crankcase, Cameron Precision Engineering Co. (Chino, Calif.) now offers boatmen a marine .19 engine, which can be had in either lapped or piston-ring models, and with single or dual needle valves, latter for two-speed operation via R/C. New engine comes with flywheel, and

(Continued on page 59)

TECH TOPICS



STABILITY characteristics of the Swedish SAAB 210 Draken double-delta research plane were initially tested on a small scale model, using control line technique (photos above and below). Power was supplied by a pulse-jet engine. Movie camera, mounted on rotating center-post, took continuous photos during flights. . . . Bell Aircraft Corp. has developed new technique called Automatic Carrier Landing System, (ACLS), for landing planes on carrier decks during adverse weather. System involves use of radar and radio feeding information into computing device which directs plane into required flight pattern by radio signals. In the event that carrier is not in best attitude for landing, the ACLS automatically sends plane around for another try.

U. S. WEATHER BUREAU is in need of more pilot reports on conditions aloft. Information on icing, turbulence, cloud tops, location of thunderstorm areas and the like can help the Bureau to do a

better job for aviation. . . . Combat airplanes will be fighting at altitudes of 100,000 ft. and at speeds better than five times that of sound in the next 10 or 20 years, according to Col. W. A. Hottman, Chief Tactical Systems Div. Air Research and Development Command. . . . Nevada Wing of Civil Air Patrol was the first civilian pilot unit to participate in atomic explosion tests in Nevada. . . . Trans-Canada Airlines inaugurated its first New York-Toronto service with Vickers Viscount turboprop airliners. The 40-place transport is extremely comfortable; large oval windows afford excellent visibility even to occupants of aisle seats. Noise level in cabin very low, slight vibration experienced only in climb and turns.

CORBEN BABY ACE, popular prewar II home-built single-place monoplane, redesigned and modernized by Paul Poberezny of Milwaukee, president of Experimental Aircraft Ass'n. Plane powered by

65 hp air cooled flat-four engine, cruises at 95 mph. Construction drawings available. . . . Degradation, long a favorite subject of science-fiction writers, may soon become a reality. Promising experiments have already been conducted. Details very hush-hush. . . . New instrument enabling motorists to determine accurately freezing point of anti-freeze in automobile radiators developed by Armour Research Foundation of Illinois Institute of Technology for Darbo Enterprise Co., Madison, Wisc. Tester consists of thermometer, a small cup enclosed in plastic casing and a tank of carbon dioxide. Anti-freeze to be tested is frozen to slush in the cup by injecting carbon dioxide from tank. When slush begins to melt, temperature shown on thermometer corresponds to freezing point of the sample.

WALTER H. BARLING, British-born aircraft engineer who in 1923 designed and built one of the biggest bombers of that period, the XNBL-1 six engined triplane, retired after a 33-year career in aviation. He was last employed by Convair, Fort Worth, Tex. Division, as superintendent of inspection. . . . CUBA's President Fulgencio Batista took delivery of a Douglas Hyper-DC-3, souped-up version of the famous twin-engine transport. Plane is equipped with bar, large picture windows, short-wave telephone and other luxuries. Carries crew of three and twelve passengers. Power is supplied by two 1450 hp R-2000 Pratt & Whitney engines as in DC-4. Cruises at 214 mph.

FOLLAND GNAT, British lightweight fighter, styled after the prototype Midge though powered by engine having three times the thrust of Midge's, may soon be in production. Chief virtue of plane is economical cost, about one-third that of the Swift and Hunter which stand the British Government approximately \$280,000 each (still about one half the price of a U. S. jet fighter!) . . . Static electricity during dry cold spells in Alaska often plays hob with electronic indicators in interceptors of Alaskan Air Command. In one instance apparatus used to adjust engine temperature on a Northrop Scorpion was found in error by 200 degrees after airman had rubbed glass dial with woolen glove, thus charging it with static juice.

EJECTION at zero altitude has not, heretofore, been considered as healthy exercise, though pilots have abandoned aircraft at altitudes as low as 150 feet via explosive seats and survived. Successful bail-out has been accomplished in England by a dummy fired from a Gloster Meteor speeding at 130 mph across runway; immediately upon leaving the aircraft, the parachute opens, letting the dummy down to the ground. The device, developed by the English firm of Martin-Baker, pioneers of ejection seats, will save crews during low-level ground strafing or bombing runs. . . . Each swept-back wing of U. S. latest jet bombers contains 14,698 bolts and rivets. . . . Convair's turboprop flying boat R3Y-1 Tradewind crossed the continent from San Diego to Patuxent, Md. in six hours flat, averaging 403 mph.



BARRACUDA



SEA SCOOTER



PORPOISE



FOKKER D-7



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PRIMER — Prefabricated profile stunt or sport. 18" span; 4" chord — .020 to .099 displ. **\$1.40**

SKYLARK — Prefabricated free-flight, for .020-.049 displ. 31" span; 105 sq. in. area. **\$2.00**

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SKY SCOOTER — Assembles without cement. Bolt lacks major parts securely. Includes .049A Cub engine, prop, control handle, decals & flying lines. Span 18". **\$7.50**
Complete kit, less engine. **\$2.95**

SUPER DING — Stunt model with symmetrically airfoiled balsa wing; 5½" chord; 18" long. Includes Cub .049A engine, prop, control handle, flying lines, and decals. **\$7.50**
Complete kit, less engine. **\$2.95**

FOKKER D-7 — Airfoiled and scalloped balsa wings. Wing and landing gear bolt mounted. Includes Cub .049A engine, prop, control handle, flying lines, decals. Wing span 18". **\$7.50**
Complete kit, less engine. **\$2.95**

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SKYLARK



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TRICK STUFF TWO PROBLEMS

He wanted to divide his
garden among 4 children

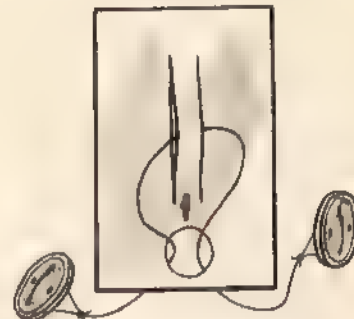
SUBMITTED BY
BILL KAY
SWANSDORD, NORTH CAROLINA



A man decided to divide his garden among his four children, each receiving an equal share. He owned a square lot on which the house took up one-fourth of the area. How did he do it so that each child received a plot with same area and shape?

Remove the buttons through
a hole that is too small

SUBMITTED BY
WARREN HAUSCHILD
KANSAS CITY, MISSOURI



The string with a button tied at each end passes through the hole and slit in paper. The hole is smaller than the buttons. Buttons and string must be passed through hole without tearing it. Can you do it?

SOLUTIONS ON PAGE 84


**What's Your
Favorite Trick?
Cash Prizes!**

We're asking readers to send in their favorite original magic tricks. Air Trails HOBBIES will pay \$25.00 for first one received and illustrated here. All you have to do is furnish us with a description of your favorite feat, include rough diagram or sketches, if required. Send to "Trick Stuff" Dept., c/o Air Trails HOBBIES For Young Men, 304 East 45th St., New York 17, N. Y.

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(Continued from page 55)

has water-cooled crankcase and cylinder head; price for ring or lapped type with single needle valve is \$14.95, while dual needle valve version costs \$2 more. These engines also have a 4" exhaust extension and starting cord as standard equipment. A 4" exhaust adapter to fit the .09 marine engine cost \$2, while Cameron offers a 12" exhaust pipe for \$1 that will work with either engine and the exhaust adapter.

Chicago Model Power Boating Assoc. holds meetings first Tuesday of every month, at 8 p.m.—Ogden Park field house. This group has been active mostly in tether speed work, one of the members—Chuck Watkins—having set a world record in the B class, with a speed of 81.8 mph. The group extends a welcome to anyone interested in model power boats, has many races scheduled for the coming season. (Check our Hobby Calendar for dates.) More info on this group may be had from Vice-Commodore John R. Matthews (10451 S. Parnell Ave., Chicago 28, Ill.).

"Eagle" Towliner

(Continued from page 54)

lage was worked out and the frontal area kept to a minimum. Main data was: span 65", length 46", tail moment 3½ span chords, total projected area 521 sq. in. (22.9% stab) and the weight is 14½ ounces.

The first towed flight was made in heavy early morning mist with the model

almost out of sight overhead before leaving the 164 ft. towline. Time was 3:35 and the only adjustments needed after this were a little stab L.E. packing and more rudder movement. Subsequent tests have shown that 2¼ minutes is an average figure for dawn or dusk flying, which makes this job a contest threat.

Even in near-calm conditions, a dead overhead cast-off is standard procedure—using the rear hook, close to the C.G. The climb is very steep, fast and arrow straight. There is no special technique to master, apart from taking care in casting off smoothly. In a good breeze, we tie the towline to our car, release the model as if it were a kite, then stroll back to twitch the line free.

Factors which contribute to the 100% towline stability are correct relationship of hook to C.G., adequate underslung fin area, short nose and that essential feature, a positive acting auto-rudder.

Bill of Materials

Hard Balsa: 2 pcs. 3/16" x 3/4" x 36" (wing L.E.), 4 pcs. 1/4" x 1/4" x 36" (wing spars), 1 pc. 1/4" x 1/4" x 36" (wing stab), 2 pcs. 3/16" x 3/4" x 36" (wing T.E.), 4 pcs. 1/4" x 1/4" x 36" (longerons), 3 pcs. 1/4" x 1/4" x 36" (wing and stab spars), 1 pc. 3/16" x 3/16" x 36" (stab L.E.)
Med. Balsa: 1 pc. 3/16" x 3/4" x 36" (stab T.E.), 4 pcs. 1/16" x 3" x 36" (L.E. sheeting, fuselage sheeting, ribs, bulkheads and stab mount), 1 pc. 3/32" x 3" x 36" (fuselage sheeting and ribs), 2 pcs. 1/4" x 3" x 36" (fuselage sides, bulkheads, ribs and fin).
Med. Soft Balsa: 1 pc. 3/4" x 3/4" x 12" (wing tips), 1 pc. 1/2" x 1/2" x 9" (stab tips), 1 pc. 1/2" x 1/2" x 2" (tail fairing).
Remainders: 1 pc. 1/16" x 3" x 3" ply (di-hedral braces), 1 pc. 1/4" x 1/4" x 12" hardwood (auto-rudder part), 1 pc. 1/4" x 1 1/2" hardwood (nose block), 1 pc. 1/4" dia. x 12" dowel (wing and stab fixing), 1 pc. 3/16" dia. x 1" alum. tube (D/T detail), 1 pc. .048 x 12" piano wire, 1 pc. 1/16" x 12" piano wire, 4 sheets medium weight tissue, 1/2 pint clear dope, cement, thread, nose weight.

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BEECH MODEL 50 TWIN BONANZA by O. E. McKee. Control line flying scale copy of famous business transport. Takes two .33-size engines; spans 40"; overall length is 27".

WATER WARRIOR by Paul del Gatto is splendid 3-point model racing speedboat for the beginner to the sport. Free running craft takes power plants from .074 to .15 cubic inch displacement. Overall length is 22 1/2"; beam is 8 1/4"; height is 6".

ELIMINATOR is James V. Reed's famous scale-like radio control model plane. Looking much like an L-19, this R/C craft is designed to take rough handling and flying without damage. Spans 6 feet overall length is 42". Uses power plants of 15 cu. in.

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What's your question? You ask 'em and ATH's Experts Advisory Board will do its best to supply the answers

We Stand Corrected . . . In answer to Mr. Gary Osburn's question you stated that the Curtiss Helldiver had two 20-mm cannon and four 50-caliber machine guns and a 50-caliber gun in the rear cockpit. In aviation books I have read it was stated that there were two different gun arrangements. One had two 20-mm cannons, one in each wing and a flexible gun, and the other had two 50-caliber machine guns in each wing and a flexible gun. Am I right?

Jim Paule, Findlay, Ohio

● A misprint was made in our answer to Gary Osburn regarding the armament of the Curtiss SB2C. It should have read: "Armament consists of two 20-mm cannon, or four cal. 50 machine guns in wings and a flexible cal. 50 machine gun in the rear."

Jets and Smoke . . . In school my friend and I have been debating on whether jets leave a smoke trail in the sky all the time or just when they want to.

Roger R. Von Haden, Norwalk, Wisc.

● Jet engines usually smoke at low altitude; at high altitude there is no smoke from the exhaust. The smoke cannot be turned on and off at will.

"War Planes of the Axis" . . . There is a book in which I am very much interested. It is called "War Planes of the Axis." I would be very grateful for any information about whether I can still purchase it and where.

Gene Ingram, Hammond, Ind.

● "War Planes of the Axis" by David C. Cooke was published by Robert M. McBride & Co., 200 East 37th Street, New York, N. Y.

Fleet Trainer as Half-A? . . . I would like to know if the "Fleet Trainer" biplane (May '51) could be built as a satisfactory half-A powered free-flight. If so, what modifications would be necessary?

Joe Hiller, East Bernstadt, Ky.

● The Fleet Trainer which appeared in the May '51 issue has been used quite successfully as a Half-A free flight model. The only thing one has to do is build it quite light, around 5½ to 6 ounces with engine. The model will be a little touchy, but an increase of dihedral to ¼" under each panel will help a lot.

Bell Airacudo . . . Was there a Bell Airacudo? If so what was it like, and when was it made?

Harold B. Ray, Compton, Calif.

● The Bell Airacuda was a twin-engine multiplace fighter, designated YFM-1. The engines were pushers, and front part of nacelles held gunners and were armed with 37-mm cannon. Only 13 of these craft were built.

First Jet in Combat . . . My boy friend and I have been having an argument on whether the Bell P-59 Airacomet was the first jet aircraft to be used in combat. I said it wasn't. Could you straighten us out on this matter?

Edward Schultz, Euclid, Ohio

● The Bell P-59 Airacomet was never used in combat.

Navy Version of Sabre . . . Is the F-86E strictly an Air Force plane or has it been used as a Navy plane?

*Ross Wayland,
Halifax, Nova Scotia, Can.*

● The North American FJ-2 is the Navy version of the AF F-86E.

First Jets to Fly . . . You said the He.178 was the world's first jet airplane. According to information I have, Italy's C.C.2 was the first jet airplane and was flown in autumn of 1938. I refer to the following books: "Real Jet Planes" published by Grosset & Dunlap and to "War Planes of All Nations" published by Thomas Y. Crowell, 1943.

Joe Laurent, Auburn, Wash.

● The C.C.2 jet plane was not the first Italian jet plane to fly—it was the first one to make a cross country flight from Milton to Rome which took place in December 1941. The first Italian jet plane was the C.C.1, construction on which started in 1938, and the first flight was made in August 1940—exactly one year after the Germans flew their Heinkel He 178. (See Air Progress in this issue.)

. . . In the 1952 edition of Air Progress on page 77 you had "Messerschmitt 262 (G1), 1st operational jet fighter in world" but in the 1953/54 edition you had on page 27 "Gloster Meteor I (G.B.), world's first operational jet fighter." Which is correct? I would like to know how many jet fighters saw action in W.W. II, how many of each type, specifications, how many were lost, and how many planes did they shoot down? Did any of the Allied jets fight any of the Axis jets?

R. Leroy Freed, Topeka, Kansas

● The Gloster Meteor was the first Allied operational jet fighter. It first flew in March 1943 and is said to have shot down a German V-1 buzz-bomb in 1944. The Messerschmitt Me 262 was first flown in 1940—but it was not the service model; it went through a number of modifications and the production model Me 262A did not fly until 1944. The Me 262A was actually the only jet fighter to see active service in World War II. The Meteor saw action only against the V-1 bombs in Southern England; some served with the 2nd Tactical Air Force in Northern Europe.

Under Control

(Continued from page 17)

put in (few fine, but he forgot that heavier wing hold-down rubbers would be required. Says he still has the wing!)

He has a Cessna 180 ready to go now, and is fiddling with transistors; George is another builder who likes the idea of a single hard-tube receiver, with an A.F. channel on the end, to get a simple multi-control receiver. He has used a Mini-Mac this way, with tone-on for right rudder and no-tone for left, in a proportional setup; then he uses carrier-off to work a 4-pole escapement, for the second control.

R/C Duration flights get longer and longer. We learn that Frank Bethwaite made a flight of just over 3 hours, in New Zealand. We don't know if this was made under F.A.I. regulations, but the plane was a large powered glider, with a Mills 1.3 c.c. diesel mounted on a pylon behind the wing. Radio equipment was the new "HMV" line, made in New Zealand; this equipment is unusual in that the two-tube receiver (using 1R5 and 3S4) terminates in a unit called a "Relaytor"—which is actually an escapement with a high-resistance winding. No sensitive relay is utilized. Receiver idling current is about 1 ma., this rising to around 10 ma. when a signal comes in.

John Hamblen (10302 Calumet Dr., Silver Spring, Md.), the 220 mc man, writes that the DC/RC club is getting ready for a big season, with most of the group converted to proportional operation. Interest in multi-proportional control is high, since two such systems were flown successfully last season—those developed by Dr. Good and by Bob Trainer. Bob's is somewhat simpler, but copies of both systems are being made by club members. John is sticking to 220 mc., he and Don Clark having been very successful with it during 1954, but will probably have a transistorized receiver on 220 soon. He has paid special attention to the one main drawback of transistors—temperature sensitivity—and feels now he has this licked by a very simple means.

R/C Team Racing? Well, that's what was proposed in the AMA monthly news sheet, Model Aviation. A full set of rules for this activity, set up by those originators of Team Racing, the F.A.S.T. Club, was presented.

Some new ideas will be tried out at the big Great Lakes R/C Meet, to be held June 25-26 (contact Ernie Kratzet, 1112 Book Bldg., Detroit 26, Mich. for full info). Contestants will be allowed to enter both the Rudder-only and Multi-control classes, but will have to fly different planes in the two. Those who elect to fly in both divisions will be expected to pay two entry fees—but can collect two sets of prizes (if they're good enough). The idea behind this is that if a fellow travels several hundred miles to compete, enters one Division but has hard luck through a flyaway or crackup, he can still get into the fun with another plane in the second Division.

Then, there will be a Speed Event; one hour each day (probably around lunch time when there is usually a lull in flying anyhow) the regular competition will be shut down and anyone who wants to try it can take a crack at the half-mile speed course. This will be a quarter-

(Continued on page 63)

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2.6 Volt BATTERY CHARGER wired & tested. \$6.95; 4.95	4.95
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VARIABLE COMPENSER, air type, screwdriver shaft 100, 125 mmf	.50
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PLATE BAIL ETC. ad, iron core 3/4" or 1 1/4"	.30
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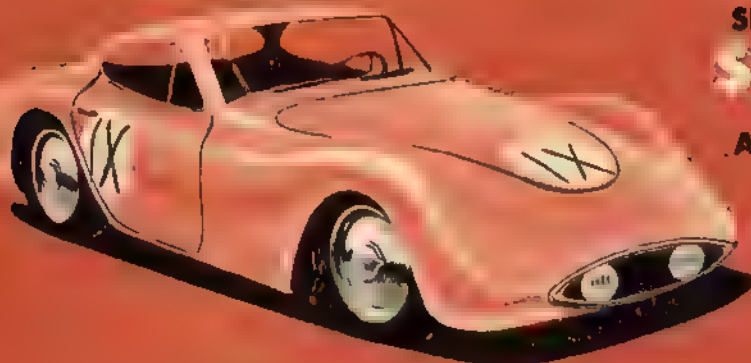
FIRST \$50 AWARD

A de luxe custom coupe by Carmine T. Fischetti of Brooklyn, N. Y. Car has 118.5 inch wheelbase and an overall length of 216 inches. Height to the top of roof is only 60 inches. Powered by a 180 hp V-8 engine and equipped with automatic transmission. Front and rear treatment is quite similar; long rear deck gives plenty of luggage space. Parking lights are above headlights.



SECOND

\$25 AWARD



Competition-sport coupe by Ronald Simmons of Los Angeles, Calif. in pure European tradition. Body is of fiber-reinforced plastic. Tubular chassis. Powered by 4.5 litre flat-six engine. Typical car for Le Mans and other races.

Three-wheel car by William Helja of New York City. This is an ingenious design with engine in rear driving the two forward wheels through a combined transmission-differential unit. Steering is by rear wheel which can rotate 90 degrees to give a turning radius of 11 ft. Seats 6 to 9.



THIRD

\$10 AWARD

It's easy to enter—

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Cash awards will be made each issue for the three most significant auto designs submitted to this magazine. \$50 will go to the top design, \$25 to the second and \$10 to the third. You may submit sketches for an original design auto, for a restyled car, for sportscar, family sedans, record cars, hot rods, military vehicles or unusual trucks. Include side, front, rear and top drawings, plus sketches of the proposed vehicle from three-quarter front and three-quarter rear positions. Sorry, we cannot enter into any correspondence about this contest. Send entries to Auto Design, c/o Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y.



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NEW... **CITIZENSHIP** transmitter for 465 mc (pictured below) is built to save you money... yet designed for outstanding performance. An economy version of our great CC transmitter; the same superb craftsmanship and quality parts. Low price of CC-I only

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For small R/C planes including 1/2A on 465 mc... 70% volume reduction. Can be TUNED ON FIELD with just 3 simple adjustments. Real value...

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FAMOUS CITIZEN-SHIP CR RECEIVER

With antenna for 465 mc medium and larger size models; guaranteed to fly "out of the box"...

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NEW SE CITIZEN-SHIP SELECTIVE ESCAPEMENT

NEW... **SE SELECTIVE ESCAPEMENT**. Select right or left rudder at will. Adapted to new "rudder only" AMA rules. Weighs less than 1 oz. The simplest control means yet designed for model airplanes when used with **CITIZEN-SHIP** radio control transmitters and receivers... the best at only...

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27.255 mc Quartz CRYSTAL list... \$4.50
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Write for name of your nearest dealer.

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We pioneered the first successful R/C equipment on the 27.255 frequency... It doesn't require fiddling... IT FLIES.

NEW CITIZEN-SHIP 27.255 PLR RECEIVER advanced printed circuit design; assembled and factory tested. Same circuit and performance as famous **CITIZEN-SHIP LR** which it replaces. Designed for crash-proof mounting.

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CITIZEN-SHIP 27.255 LC TRANSMITTER

Completely self contained, factory tuned; complete with tubes and crystal

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"Fool Proof" Do-It-Yourself RADIO CONTROL RECEIVER KIT

Take the "fiddling" out of kit assembly... start flying. Success for beginners; have fun of building it yourself. Kit includes Sigma relay and 3V4 tube.

\$19.95



NEW CITIZEN-SHIP PLR RECEIVER

Citizen-Ship RADIO CORP.
909 Westfield Blvd. Indianapolis 20, Indiana

(Continued from page 61)

mile out to a marker and back, and will be timed by several stopwatches; winner will carry off the Bramco Trophy; there will be a time limit for each entrant in the Speed event—timed from instant the contestant is called for his turn, till the moment he lands again. This meet is expected to be very popular in the Midwest, since with the Nats on the West Coast, many flyers will not be able to make the latter. This two-day R/C meet is open to all comers.

Technical Matters. Gil Miles (190 Croydon Rd., Croydon, N.S.W., Australia) is still working on his idea of using a transistor as an oscillator in a 45-volt power supply, for R/C receivers. He has done enough with this to be convinced it is entirely practical, but is stymied at the moment by lack of transistors in his country and by the fact that he can spend very little time on this project. There is also the problem of getting a special lightweight transformer made for the outfit, but this will probably be licked. Gil notes that the "Australian R/C Model Aircraft Group" has just been formed, and is affiliated with the Model Aeronautical Assoc. of Australia. He has been selected as Secretary, and hopes through the new group to maintain better contact among the widely scattered R/Cers in his country.

A noisy 3A5 tube in his Babcock BCR-3 receiver gave W. L. Kramer (107 Frederick St., Pittsburgh 10, Pa.) a lot of trouble; it would cause the relay to pull in erratically when the engine was running. He solved this by mounting the offending 3A5 in a block of foam rubber cemented to the receiver case; a cable

of very thin flexible wire ran from a socket on the 3A5 to a plug that fitted into the normal 3A5 socket in the receiver. Such an addition would undoubtedly require retuning of the receiver. Outfit has given fine results since the change.

Use of Citizen-Ship 465 mc. apparatus in boats has not been encouraged by the makers, since it was not originally found to work too well. However, recent answer to our query on this subject brings some new hints on such operation. Control Research notes that the type CR receiver (the one that has a rectangular loop antenna below the base) has been used nicely in boats, when the receiver was mounted as high in the craft as possible—and with the loop antenna uppermost. The antenna-less type AR 465 mc. receiver has been used in boats by simply attaching a vertical antenna wire to A minus; this works out, since the battery wiring acts as the antenna for this model of receiver.

We attended the annual Institute of Radio Engineers show, held in New York City, hoping there would be some hot items that could be used for R/C purposes. There were, as usual, and a few of them might be mentioned. Several new relays will be on the market soon, among them a 1.5 oz. balanced-armature unit with screw adjustments by Advance Electric & Relay Co., called type SO; 6500 ohm unit normally adjusted at factory to operate at 1.25 ma., and open at .6 ma. Allied Control Co. showed their KH-6D, a sealed relay in a can about the size of a Z9A crystal, and with an 8-pin base; it's a DPDT style, with up to 5000 ohm coil, but at this resistance, requires 15 ma. to op-

erate. Sigma showed their Type 11, which is somewhat similar in size and shape to the popular Price relay; this will be sold at a very low price—around a couple of dollars.

For the ultra-sub-miniature fans, Neomatic (this concern is now known as Elgin-Neomatic) showed their "Neomite," which is about the size of a metal-case transistor! Has SPDT contacts, weighs less than 1/16 oz. and will be made in coil resistances up to 2000 ohms; it is being produced in small quantities now, and the price is high, but concern hopes to get it down to the hobbyist level eventually. Sub-min toroids, ideal for the audio tone filter experimenters, were shown by Hycor Sales Co. and Communications Accessories Co.; both concerns make uncased units of about 3/8" dia. x 5/16" thick, in values up to several henries. These chokes weigh less than 1/4 oz. A most complete line of tiny transformers may be had from Microtran Co., which has stock types as small as 3/8 x 7/16 x 3/8". Complete line of sub-miniature connectors is produced by U. S. Components, Inc., which has them in rectangular types measuring about 5/16 x 3/8", with 11 pins—make many with more or less pins.

Amphenol Series 27 "Subminax" RF connectors look good for R/Cers; these are single-lead style made for tiny coax cables—should be good for antenna leads on both transmitters and receivers. Arco Electronics has new line of tiny mica fixed condensers in values from 1 to 510 mmf.; they measure 7/16 x 3/4 x 3/8", are perfect for those critical spots in the receiver—grid condensers, across tank coil, antenna condenser, any place where you want unchanging value of capacity, re-

(Continued on page 65)

NEW**MERCO
PRODUCTS****SPINNERS**

Hi-Impact Plastic—Hot Fuel Proof
Complete with metal backplates
Needlenose and Regular

sizes ————— $1\frac{1}{4}"$ **29¢**

$1\frac{1}{2}"$ — $1\frac{3}{4}"$ — $2"$ — $2\frac{1}{4}"$ — **39¢**

FLYING HANDLE

Easy grip—Plastic
Complete with 50'
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"MY FAVORITE MODEL"**"TWIN STREAK" says Jane Chance**

■ "My favorite model is a twin conversion of the Stanzel Aeromic Streak glider. I call it the 'Twin Streak.' My sister and I learned to glide a motorless A-J Hornet with a daub of clay on its nose. We bought two Aeromic Streaks at the dime store. . . . Daddy decided the two of them would make a good twin glider and rebuilt them as shown in the pictures.

"The Twin Streak is very stable. I launch it by hand from a hill and it makes long smooth glides and lands like

ter section. Next you crop $2\frac{1}{4}"$ off the tip of each "inside" wing and $\frac{1}{4}"$ off the tip of each "inside" stabilizer.

Remove wings and stabs from fuse-



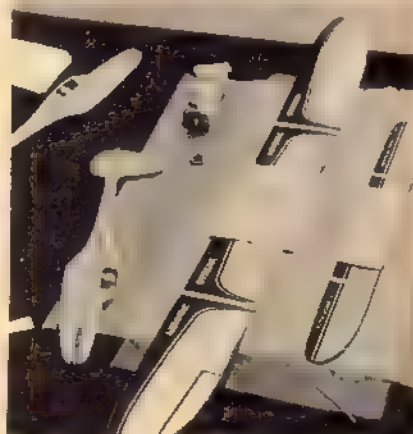
lages. Cement tips together, reinforcing and fairing the center sections with the sheet balsa. Wing gets sheet on top and bottom, stab on top only. After drying, trim and sand smooth.

A piece of $\frac{1}{4}"$ balsa block cemented to underside of wing's center section will come in handy for launching.



a real sailplane. I like to fly planes as well as the boys do. I am six years old."

Mr. Chance of Jonesville, Va. reports that all you need in addition to the two Stanzel gliders are two pieces of $1/16"$ sheet balsa for a wing center section each $4\frac{1}{2}"$ long and another piece of sheet $1/16"$ same length as stab cen-



Do you have a favorite model? Tell us about it and include some good clear photographs (black and white only, please—no color). Send your entry to: My Favorite Model Dept., c/o Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y. We will return any

contributions not used, but cannot assume responsibility for them (don't send negatives unless requested). We pay \$25 for photo(s) and story that appear here. Any type of model is eligible, working or non-working, plane, boat, car, etc.

Under Control

(Continued from page 63)

ardless of temperature. Same concern has midget mica compression trimmers, just right for such receivers as the Mini-Mac, but half the size of the Arco 469 specified in this receiver.

Switchcraft, Inc. showed their Tini-Jax and Tini-Plugs, which are same shape and design as regular telephone jacks and plugs, but about one-third the size; jacks come in open- or closed-circuit types, plugs with either metal or plastic shell, and costs are very low. Sub-min toggle switches were shown by Miniature Switch Corp. in both SPDT and DPDT types, while Hetherington Inc. had tiny round-style toggle switches and push-button switches, all with snap-action contacts. Many manufacturers are getting more interested in the R/C field, either making special components for us, or adapting what they have (and getting the costs down at the same time). With the widespread increase in use of transistors, components makers are reducing the size of every other electronic part to match—which will be a boon to R/C experimenters.

Many of the items seen at the show, including those listed above, are not presently on the retail market, but some of them will be available from the R/C suppliers as soon as deliveries can be arranged.

Commercial Offerings. Quite a few R/C builders have found fiberglass of great use on their planes, but supplies of this material have not been easy to get in small quantities. All this is changed now, for a kit containing several thicknesses of fiberglass, together with the necessary

resin and hardener, and other incidentals, is being sold through model channels by Midwest Products Co. (Gary, Ind.). Priced at \$4.95, kit contains plenty of material to beef up noses and other vital spots on many planes. This material is also ideal for making receiver containers, engine cowlings, etc., is absolutely fuel proof. Berkeley Models is also entering the fiberglass business in a big way!

Citizen-Ship Radio Corp. (Indianapolis 20, Ind.) advises that their new CC-1 465 mc. transmitter is virtually identical to the earlier Model CC, but doesn't have the neon lamp that the F.C.C. formerly required, and has a steel case instead of aluminum. These modifications make possible the lower price for CC-1—it costs \$34.95. The CC transmitter will no longer be made.

Ace Radio Control (Box 301, Higginsville, Mo.) will stock the Jaidinger "Little Gem" sensitive relays, which weigh about ¼ oz. and have 5000 ohm coil. Price will be \$5.50, and relay can be adjusted to .2 ma. differential easily. Ace will also carry Bramco line of multi-channel equipment; latter includes receivers, transmitter and reed units.

Folk's Model Craft Hobbies (314 5th Ave., New York 1, N. Y.) has good supply of Aristo-Rev high efficiency electric motors. This is the one made by Distler, and price is \$3.50 each.

Several more new items from Babcock Radio Engineering Inc. (Van Nuys, Calif.). As companion to Super Compound escapement, there is now an Elevator escapement for \$12.50; designed primarily for plane use, it is also fine for rudder control on boats. Then, there will soon be a Sequence Reversing and Speed Control unit, for electrically-pro-

pelled boats; price and release date of this one not announced as yet, but watch for it. Babcock has made modifications to BCR-4 receiver that materially increase efficiency and reliability; receiver will henceforth be called BCR-4A, will replace the BCR-4. Price remains the same. Companion BCT-4 transmitter is unchanged.

New servos have been announced by deBolt Model Eng. Co. (Williamsville, N. Y.). First to reach market will be Model 5PN, intended especially for use with electrically-propelled boats; operating from single channel radio equipment, it will give selective rudder positions plus forward or reverse motor and motor shut-off. Thus it is actually equivalent to two separate servos; price will be \$24.95, and the unit features a special mode of operation to make it practically impossible to skip or miss pulses. For multi-channel flying, Dmeco will have the MCR and MCE Multi-Servos, which have been designed to prevent jamming during high-speed flight. They have Nylon gears and lots of power, yet with low current drain. The rudder servo is self-neutralizing, but can be pulsed continuously to give a sort of proportional effect. MCE, the elevator servo, is trimmable near the center of its range, but self-centering when you go past this area. More info on these, including prices, as soon as we hear from the makers. Concern is now shipping semi-scale R/C plane kit for Aeronca Champion; while seemingly pretty large for a .15 engine, light but rugged construction allows it to fly well with this size powerplant, up to a total weight of 4 lbs.—of which 34 oz. may be radio equipment.

Four-position Joystick is being sold by (Continued on page 67)



Have Fun With This B-25 Mitchell
and Other Monogram Twin Engine Bombers

the complete kit!

Kit contains all parts molded to shape, including 2 pilots, 2 gunners, landing gear, 75mm cannon, 14 machine guns, 6 rockets, 2 three-bladed props. Decals too.

15 Gun
All-Plastic
Knockout
by Monogram

98¢
each

Get this new all-plastic B-25 fellows—the famous bomber flown by General "Jimmy" Doolittle. Then get its mate, the B-26—the slick Invader with the terrific fire power. And of course, you've got to have "Old Dumbo," the Catalina PB-5A patrol bomber.

Boy! What a collection these three will make! Out on the "strip," side by side—rubber wheels, authentic landing gear, crew visible through the crystal-clear "greenhouses," flashing colorful insignia and markings. Next to real planes they are the real-est you have ever seen. Get them all fellows and have fun. If no dealer near you write to address below. Enclose 25 cents extra to cover packing and postage.



Last Word in Realism
and Fine Detail

This is it fellows. The very finest in molded plastic aircraft. You'll be amazed with the perfect detail—right down to the last rivet.

Monogram Models INC

3421 West 48th Place • Chicago 32

BUILD A REAL SCALE SOLID MODEL AIRPLANE



Here are real scale models worthy of the name, not a few pieces of plastic that stick together in 5 minutes and look like a dime store toy. Fully carved fuselage, shaped wings and empennage—jam-packed with metal castings—every item that can be reproduced—is given to you.

PBF Bearcat	\$2.75	P-51 Mustang	\$2.75
P4U Corsair	\$2.75	PFF Panther	\$2.75
PW Cougar	\$2.75	F-86 Sabrejet	\$2.75
PW-190 Focke Wulf	\$2.75	F-80 Shooting Star	\$2.75
P4F Hellcat	\$2.75	British Spitfire	\$2.75
P-38 Lightning	\$3.50	P-47 Thunderbolt	\$2.95
ME-109 Messerschmitt	\$2.75	F-84 Thunderjet	\$2.75
MIG-15	\$2.75	F-82 Twin Mustang	\$3.50
P-40 Warhawk	\$2.75		

17' INBOARD CHRIS-CRAFT SPORTSMAN

\$4 95



One inch scale. Here is a flashy, fast and rugged inboard, super de luxe in appointments. Easy to build, with completely carved hull, die cut mahogany deck and plastic windshield. 26 beautiful metal fittings: windshield brackets, steering wheel, clutch handle, stern light, boat hook, fire extinguisher, propeller shaft, stuffing box, step plates, hoisting rings and working anchor. All you need is your engine and fly wheel.

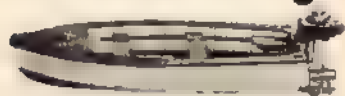
LAYTON SKIFF

\$1 95



Here is a big, inexpensive skiff designed for the electric or 1/2 A engines, easy to assemble, complete to the oars. Length 17", Beam 7", Freeboard 3". Die cut Balsa construction. Eleven metal fittings including oar lock sockets, oar locks, cleats, chocks, anchor and fire extinguisher.

OUTBOARD RUNABOUT \$3 95

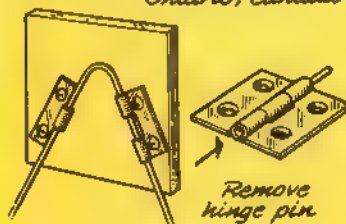


16 Foot Deluxe Outboard Runabout designed expressly for the new 1/2 A outboard engines! 16 inches by 6, fully carved and shaped. No other scale kit has ever been so easy to put together, SO PERFECT IN OPERATION. Detail Gallery... Chocks, cleats, bow and stern running lights, boat hook, oar locks, fire extinguisher, working navy anchor—15 beautiful metal castings of the kind Dyna-model is famous for.

If no local dealer is convenient, mail orders will be filled. Please include 25¢ for packing and postage. No C.O.D.s.

DYNA-MODEL PRODUCTS COMPANY
76 SOUTH STREET, OYSTER BAY, NEW YORK

Practical fittings for attaching landing gear to fuselage are had by dis-assembling cabinet hinges. Slip on fittings, then bend wire says Fred Oille, Ontario, Canada.

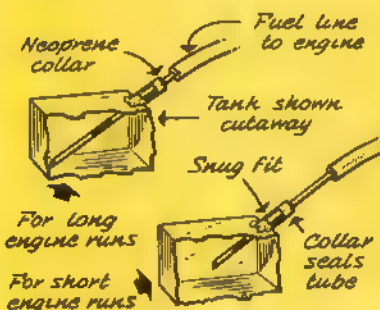


Remove hinge pin

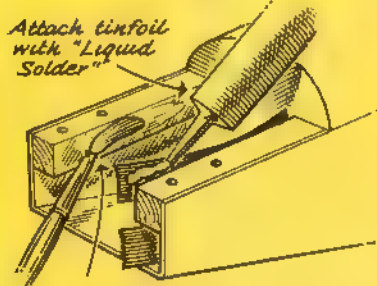
MODELERS

Sketch-book

Have you developed something new in construction, control, operation or finishing of model craft? Send a rough sketch—we redraw it and pay \$10 if accepted. Only original ideas; no entries returned.



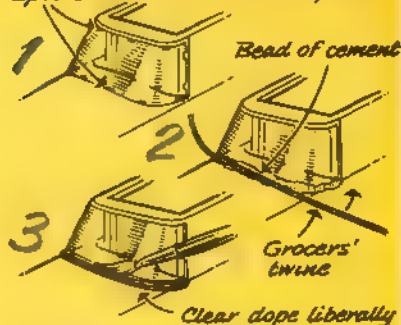
Tank for model boats has adjustable pick-up tube to control length of engine run (tank filled to capacity). Submitted by Dave Light, Spenard, Alaska.



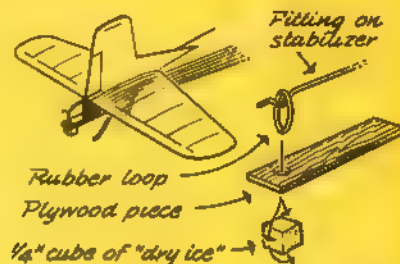
Apply fuel-proofer over tinfoil

To prevent fuel penetrating & weakening engine mounting Pete Manfre, Oakland, Calif., recommends covering areas with tinfoil, then applying fuel-proofer

Spot-cement windshield in place

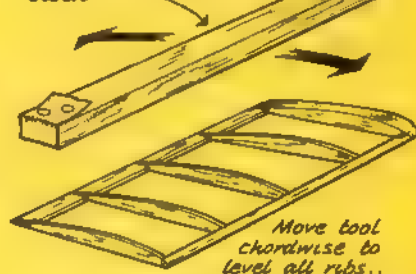


Workmanlike joint between fuselage & windshield is assured in this method used by Sheldon Brown, W. Franklin, N.H.

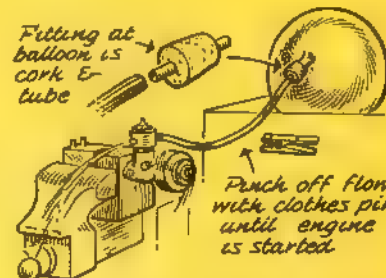


Fire hazard of fuse-type dethermalizers is eliminated by use of dry ice type. 1/4" cube of dry ice vaporizes in approx. 3 min., releases band to pop-up stabilizer—Hal Yeager, Editor, Salt Flat Sentinel, Salt Lake City, Utah.

Sandpaper strip, thumb-tacked to 1"x2" hardwood block



Uniform ribs make for smooth covering. J.L. McLarty, Rocky Hill, N.J., uses long sanding block across wing frames to remove irregularities. (Idea applies to boat building also).



Break-in running of water-cooled engines is safely done with water supply from 5 cent rubber balloon; is clever tip from Robert Dallman, Chicago, Ill.

(Continued from page 65)

Gyro Electronics Co. (New York 13, N. Y.); intended especially for use with multi-tone transmitters, it has Up, Down, Right and Left positions of control stick, in a case about $2\frac{1}{2}$ x $2\frac{3}{4}$ x $1\frac{1}{2}$ " high; silver contacts are used throughout, and there is a socket for connections to transmitter.

Price is \$2.95 completely assembled. Gyro offers kit for 3-tone modulator using a single tube, which can be attached to most transmitters and will afford close to 100% modulation; push-buttons select the tones, and kit comes with tube and case, for \$5.85. A kit for a 2-tube proportional pulser, usable for single or dual control systems, sells for \$7.95.

Experimenters looking for phosphor bronze spring strip may obtain same .159" thick and $\frac{1}{4}$ " wide, and any length up to 12', from Talmco Microvones (Box 125, Oakland Gardens Sta., Flushing, N. Y.). Costs 16¢ per foot up to five feet, and 10¢ per foot for longer lengths. Minimum length sold is 3', but material may be had in one piece, or will be cut into any lengths requested.

Special high resistance escapement, the Model T700, will be sold on an experimental basis by Newx Products Co. (Box 643, Union, N. Y.), for \$12.95. Intended especially for use with transistors, unit can be set to operate at a current of about 10 ma. Armature return spring is adjustable. Newx is testing transistor circuits, will make recommendations as to the best setup for use with this escapement.

Power supply working from 2 V. storage cell is offered by MC Mfg. & Sales Co. (6720 Monroe, Kansas City 30, Mo.). A switch selects either 150 or 180 V., at 40 ma. current, and choke filter is used. Adjustable filament resistor allows the use of any desired number of tubes in transmitter. Model 20 is $3\frac{3}{4}$ x $5\frac{1}{2}$ x $4\frac{1}{2}$ " high, sells completely finished for \$12.95.

The complete kit is \$10.95, and essential parts may also be had individually. Model 20-250 is somewhat smaller, is intended to fit inside MC model 250 or 400 transmitter cases; prices are same as for model 20.

Ken Models Boats

(Continued from page 23)

dinner in the Waldorf-Astoria. Young Eads, the major builder, handled negotiations that resulted in a sale of the Gjoa model for \$350. Of this amount \$50 was contributed to the building fund for the Boys' Club in Queens. Inasmuch as other boys had cooperated with Kenneth on certain details of the model, the remaining \$300 was broken down so that each boy received about \$50.

The Boat Show held at Grand Central Palace several years ago marked another high for Kenneth and his comrades who are interested in ship models. They set up an exhibition of the Madison Square Boys' Club for the Seamen's Church Institute. For this display, Kenneth designed a mounting of plaster of Paris simulating waves that drew favorable comment. His schooner *Flying Enterprise* was sold. A group of small boats brought varying amounts from \$1 to \$10.

(Continued on page 69)

A NEW RELIABLE 2 TUBE RECEIVER

IT'S HERE!

THE SPECIAL — UNIQUE — EXCLUSIVE ESSCO EIL CASCADE QUAD RECEIVER

FEATURES

LOW 1st stage idle current. Extended battery & tube life. 500 hrs. and more on 6X4 tube. Stable Sensitivity due to low idle current—Simple & STAY TUNING adjustments. THE ESSCO QUAD CONVERSION KIT allows you to convert all older model Lorenz Receivers.

MORE FEATURES

THE ESSCO QUAD CIRCUIT keeps 2nd stage always under control. Current rise up to 8-4 ma with signal if desired. Use any preferred tube in 2nd stage. An inexpensive hard tube gives you reliable & economical relay operation. Silver mica condensers used in input stage for stability. An exclusive ESSCO FEATURE. NEED WE SAY MORE?

COMPLETE BASIC PARTS KIT includes all required components, drilled base, wound input coil, National R39 RFC, cable plug-jack, tube clamp & special submini control pot. (less tubes) \$ 6.95
MODEL A QUAD H. Q. Parts Kit \$12.05, Ready For Use \$10.95
MODEL B QUAD H. Q. Parts Kit, complete as above, with tubes and the incomparable PRICE ELECTRIC relay 18.95
THE ESSCO MODEL B QUAD RECEIVER, WIRE-TESTED, READY FOR INSTALLATION—THE ULTIMATE IN RELIABILITY only 28.95
CONVERSION KIT, easily converts all LORENZ receivers to the NEW ESSCO EIL QUAD circuit, Model MA available for North American Twin Tubers 8.45
COMPLETED SUB-ASSEMBLY requiring only 3 connections for installation in your set 4.95
CONTROL POT. required extra. Subminiature type \$1.00, Miniature90
PRINTED CIRCUIT method is not used on these ESSCO receivers. Only 2 pm. of filament wiring totaling $3\frac{1}{2}$ in. is used. All other connections are made by direct termination of components. A comparable P.C. assay calls for 8 to 8 in. of fragile etched wiring with possibility of open circuitry caused by vibration & stress. This additional wiring adds undesirable capacity in the high frequency tuned circuits. We guarantee that our time & flight tested method is far superior & will outperform all other sets.

SPECIAL—THE NEW AEC MAC III RECEIVER, as featured in Air Trails. THE ESSCO H. Q. Parts Kit includes all specified components of the very highest quality, tubes, drilled base, wound coils and relay if desired. Price?—ESSCO's price is lowest because ESSCO's quality is TOPS.

ARE YOU ONE OF THOSE DIEHARDS THAT STILL PREFER SINGLE HARD TUBE RECEIVERS? Then you will be interested in the NEW ESSCO SUPER MINI MAC. A reliable and sensitive LONG RANGER that features low A & B battery drain. Complete parts kit includes SIGMA 28F Relay \$14.95

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VESTAL, NEW YORK TRIPLE CITIES R. C. SUPPLY CO.

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WHAT'S NEW IN RADIO CONTROL? * * WATCH THIS LISTING FOR NEW ITEMS OF INTEREST TO MODELERS.

THE ESSCO DUAL POT. A new lightweight easy 2 controls on single panel for mts in your model $\frac{1}{4}$ oz., screw driver adjustment. Mts with 2 screws. Available 2 types, 10K & 25K, or 10K & 100K, either type. \$1.45

A NEW RELAY FOR R/C: The Advance type SO. Super Sensitive, balanced armature, size $1\frac{1}{4}$ oz. Screw adjustable to close differential bet. pull-in-dropout settings. 4000 ohm—\$6.00; 6500 ohm—\$6.30; 10K—\$6.60.

MINIATURE SIZE PHONE PLUGS & CLOSED CIRCUIT JACKS FOR METERING—One third size and weight of the STD units. Eliminates make-shift methods. Plug \$6.00 Closed circuit jack \$4.50

THE ESSCO ELECTRO PULSER: TWIN TUBE WAG electronic pulser. A complete unit in hand size aluminum case, suitable for single or dual proportional control, only \$14.95

LIVE WIRE "CHAMPION"

R/C SCALE!

Patterned after the ever popular "Aeronca Champion", designed to give the best in R/C performance, here is the model you have wanted! With full scale appearance it's simple to build and easy to fly just as a R/C model should be! Fly it "rudder only" or use elevators and engine control too, complete information is given!

A product of
deBolt Model Engineering
Williamsville, N.Y.



SENSATIONAL KIT!

Wing span: 56"
Wing area: 600 sq. in.
Weight: 3 to 5 lbs.
Power: .15 to .19 engines

- Removable R/C unit for ease of service
- 2 big full size detailed plans with instructions
- Complete control installation information
- Premium grade balsa and hard maple parts
- Precisely machined and sharply die cut parts
- All necessary hardware
- R/C Bellcrank and horn
- Formed dural gear!

DELUXE PRE-FAB KIT...

(Continued from page 67)

Most of the time Ken has some of his models, both historic and modern, on display in various restaurants and other local business places. Such firms pay a rental for the ships on display.

Money for college is the only thing that stands between him and his goal—Aeronautical Engineering. But it looks like young Eads will reach the aeronautical heights crossing a bridge of boats—models, that is. —E. C. McKnight

National Competitions For Young Men Scholarships, cash, trips!

▶▶▶ \$5000.00 Cadillac is First Prize in Monogram Contest. How would you like to win a \$5000.00 Cadillac, just for writing a short letter? See the Monogram Models announcement about their two new model Cadillac kits and the real, honest-to-goodness Cadillac Coupe de Ville they are giving away. There are nine other prizes too, including a \$1,000 Savings Bond Second Prize, just for telling in 25 words or less what you like best about the Monogram Cadillacs. See your Hobby Dealer for full information.

▶▶▶ Industrial Arts Awards annual competition sponsored by the Ford Motor Co. More than 1500 individual awards valued at \$50,000 are given each year. Open to school students in grades 7 through 12 enrolled in shop, drawing or printing courses. For information write Industrial Arts Awards, Ford Motor Co., 300 Schaefer Road, Dearborn, Mich. Far West entries close June 10 elsewhere June 25.

▶▶▶ Do you like to sound off? Enjoy expressing your opinions? Like to write powerful letters—and get paid for it, too? E and H Model Hobbies (130 W. Chelton Ave., Philadelphia 44, Pa.) is offering gift certificates (one each) of \$25, \$10, \$5 and seven of \$1 each for the best letters on "Why I prefer plastic model kits" or "Why I prefer wood model kits" when model building. Says Zev Goldberg of E and H: "Tell us your opinion in a short letter. Entries will be judged on the basis of originality and sincerity. Decision of the judges will be final. All letters become the property of E and H Model Hobbies. Contest closes at midnight June 30, 1955."

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Hey you R/Cers!

EASY TO USE? EASY TO MAKE?

You bet it is!

Power-Pac Radio Kit

Solder and assemble from easy to follow diagrams. Designed to be used with 281 Relay. Ideal for proportional control!

SAVE TUBE LIFE

SAVE BATTERY LIFE

Kit Form Includes:

Driller, base wound coil, closed circuit meter

Jack, toggle switch, etc. (less tube and relay)

A Real DeLuxe Kit for \$4.65

Kit with 281 Relay, KFG1 tube, meter jack, toggle switch, 281r pot and 3 prong plug.

RELIABILITY GUARANTEED OR MONEY BACK!

Priced... \$15.95

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Power-Pac Transmitter

Complete with milliammeter, black all steel case with handle. Includes antenna and keying switch. (less Batteries) \$24.95

Power-Pac Field Strength Meter Kits

Super-sensitive crystal diode

Less meter \$2.50

REDUCED!

R/C Balloon Tires—50 lb. test

Orig. \$2.95

NOW \$1.49

Complete supplies R/C planes, boats and Radio Equipment!

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SA-16 Albatross "TRIPHIBIAN"

54" wingspan SUPER MODEL of GRUMMAN Air Rescue Craft

\$25.95
Complete



This flight tested beauty is 33 inches in length and kit comes complete with pre-cut parts. All balsa needed for planking entire model. Full size blueprints. Landing gear is built-up with semi-pneumatic rubber tires. Gas tanks are completed. Has beautiful aluminum cowling, propellers, decals, and many extras.

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SCHOOL CAREER • JOB GUIDE FOR YOUNG MEN

SALUTE TO "STEVENS." On last April 15 the seventy-fifth anniversary celebration of the American Society of Mechanical Engineers was held at Stevens Institute of Technology, where the organization was founded. More than 500 engineers and educators in this country and from abroad came to the campus of the school overlooking the Hudson River at Hoboken, N. J. to take part in the event.

Indirectly, the visitors were also helping honor the name "Stevens," for this particular family made more contributions to the engineering profession than is usually realized. Colonel John Stevens, the father of the school's founder, built a working steamboat in 1798, nine years before Fulton's *Clermont*. He gave the world its first ocean-going steamboat, and the first steam ferry. Becoming interesting in railroads, the elder Stevens constructed steam locomotive No. 1 in the U. S.

His son Edwin, whose will provided for the founding of the Institute in 1870, showed the way in the use of armor plate for warships. As a result of his successful experiments, President Tyler signed the first government order for appropriations for the development of protective armor for war vessels. Both Edwin and his brother Robert were pioneers in railroad building. Like his versatile father, Edwin set up—and was also operating head of—a line that eventually became a part of the Pennsylvania railroad system.

It is interesting to note that although it has branched out into several specializations of engineering during the years, Stevens Institute has retained its original concept of granting a single degree in Mechanical Engineering which fits its graduates to practice in all the various main fields of the engineering profession. (At the time of its founding, "mechanical engineering" meant practically everything that wasn't non-military engineering; only "civil engineering," which designated the non-government kind, had emerged as a separate branch like our present electrical or mining engineering.)

GUARANTEED TECHNICAL TRAINING IN THE U. S. ARMY. While you're considering how to get education in the technical area of your choice after high school, you may find an answer in the new set-up offered by the Army whereby prospective enlistees who prove their fitness are assured of training in an Army school before signing up for service.

Here's how it works. Out of the more than 100 courses available, you select two that interest you. Making your selec-

tion known to a recruiting sergeant, you discuss with him your hobbies, part-time work history and other background information, and take a mental test relating to the career fields you have chosen. All this is then evaluated by professional personnel, and if you qualify you receive a letter from the Adjutant General that constitutes a guarantee you will be enrolled in one of the two schools of your choice following basic training, providing you enlist by a certain date. Remember, you are still a civilian. On receipt of the letter, you decide whether or not to enlist, and for what period. (Minimum is three years.)

What are the courses like? In the field of Electronics, you may choose from a dozen courses including Electrical Instrument Repair (12 weeks) and Radar Repair (33 weeks). In Marine Operations, for instance, you can go to school for three months learning how to operate, maintain and repair diesel and gasoline marine engines. Nuclear technician, machinist, welder, draftsman, medical technician—these too are job titles obtainable at Army schools. Engineering is represented by such courses as Heating and Ventilating (8 weeks) and Refrigeration Equipment Repair (10 weeks). There are a number of courses in the realm of aviation, all related to Army aircraft (longest is Helicopter Repair, 23 weeks), and in guided missile repair, which comes under Armament.

In common with all the Armed Services today, the Army encourages students to finish high school first. To qualify for Army enlistment and the technical education deal discussed here, you must have a high school diploma or pass an equivalency test. If you are still in High, you will need a letter from your principal saying there is a reasonable chance you will graduate with the present class.

To learn about all the technical courses available, ask your local Army recruiting sergeant for a booklet entitled "Reserved for You." He will answer any questions you may have.

BOOKLETS TO GET. One of the best and most graphically presented "indoctrination" booklets on engineering to come our way recently is "Careers in Engineering" issued by Purdue University. Aimed at the high school student, it tells what the various main branches consist of, describes just what the aeronautical, electrical, mechanical and other engineers actually do, and touches on the educational requirements. With 36 pages the size of our own magazine, it is filled with large photos of up-to-the-minute projects, has sections on opportunities in related careers, and answers many questions for young fellows interested in engineering—wherever they live, whatever school they have in mind. Single copies are yours for the asking. Address the University Editor, Engineering Administration Building, Purdue University, Lafayette, Ind.

How do you go about choosing your college? One of the important methods nowadays is to "shop," to see for yourself, to learn at first hand. Of authentic aid in this respect is the booklet "How to Visit Colleges," published by the National Vocational Guidance Association at 25 cents per copy. Prepared with the assistance of scores of college and high school educators and students, this one tells you what initial steps to take, what to look for on the campus, how to evaluate the information gleaned in respect to your case.

As pointed out, nothing can give you the "feel" of your future academic home

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better than a preview visit. Nor do school catalogs answer all the pertinent questions listed here for your guidance, or find it practicable to go into details. For example: What is the typical size of classes for freshmen? Are students permitted to select their own roommates? What scholarships are available to entering students? What's the score on automobiles? Among the practical suggestions: Take your camera along and use it.

One section of the booklet presents a "calendar" to be followed in your senior high year—when to apply for actual college admission, when to take the College Board exams required, when to make your deposit for tuition. All told, this is a valuable "how to" for prospective college students. To obtain a copy, send 25 cents to National Vocational Guidance Association, 1534 "O" St., N.W., Washington 5, D. C.

Model Car News

(Continued from page 7)

American car builders; Harold says that probably due to the cold and damp weather in England, they have not been able to attain quite the speeds we make in this country.

Another overseas correspondent is W. K. Chun (72 S. School St., Honolulu 43, Hawaii) who feels there is a good prospect of interesting the local Parks and Recreation authorities in building a 1/24th mile track in the near future. Continuing his International coverage, Carl notes that he hears frequently from Mrs. C. A. Hardy (25 Greenway Ave., Hamilton, Ont., Canada), who apparently acts as scribe for her husband. Mr.

Hardy has built many cars, is most active in promoting the hobby in Canada. He has sent one of his cars to Carl, who will run it "proxy" at meets in the U. S. Mr. Hardy is a fine source of information on model car and boat racing, welcomes letters from anyone in his country (or elsewhere) on the subject.

Carl says he hears from Glenn Fairabend that the latter is still handling model car parts and super-hot fuels; he himself is getting caught up on orders for 1234 cars, hopes that Dooling will soon get some engines under way, and that Woody Woodward will get his Hornet magnetos into production.

Idea to promote more car running comes from Carl Dunlavy (610 E. Grand Blvd., Corona, Calif.). He finds the fellows in his area hesitate to bring their "store-boughten" cars to the Corona track for running, since they know they can never attain anywhere near the speeds gained by the Custom cars. So the fellows who run at the "Little Circle Speedway" in Corona will promote a big contest in three divisions, designated as I—"Hot," II—"Lukewarm" and III—"Cool." Past reputation of the car will determine bracket into which it falls. This will be an all-trophy affair, with the prizes for the "Cool" division just as nice as the ones for the red-hots.

There will also be a novelty race to compete for the Tortoise Trophy. This will be a half-mile affair, and the slowest time wins; the speed boys are already figuring on ways to slow down their Hornets, McCoy's and Doolings so they will creep along for a half-mile without stopping or overheating.

The local track had some bad cracks, and Carl feels other groups may be in-

terested in the way these were repaired. Originally the cracks were filled early in the day, but the later heat would expand the track and crumble the patchwork; now they mix "Floor Stone" and water to the consistency of cream and pour it into the cracks during the hottest part of the day. A trowel is used where necessary, and the repairs have been found to last from one to several weeks. Floor Stone sets up quickly and very hard. The Corona track is reinforced, so that the two edges of cracks remain level; probably this idea would not work if there were no reinforcement, since the crack edges might be at a different level.

Incidentally, we welcome Carl Dunlavy into the select group of those who are sending us news.

Commercial Products. "Martin Flash" cars are manufactured by Martin Engineering Co. (8705 S. Chicago Ave., Chicago 17, Ill.). Cars are made to take .19 and .29 engines and final prices are not available, but less engines, the finished cars for .19 will cost \$25-30 and the .29's, \$28-32. Cars in latter size will take the Dooling .29 engine, which is being manufactured again. Also, both sizes of cars are fitted to be run on either cable or rail tracks. Concern can also supply for 50¢ each prints of a portable 18-section cable track on which one lap equals 1/80 mile (66'), and which can be quickly assembled or taken down by means of 3/4" bolts. Track is made of plywood with a Masonite surface, and framework of 1 1/2 x 1 1/2 x 3/16" angle iron; it is constructed from easy-to-get materials throughout, can be made without extensive tool facilities. Plans are half size, and track is about 23' diameter when assembled.

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PROJECTS FOR THE HOBBY MODELER



This Field Box Checks Plug in Engine!

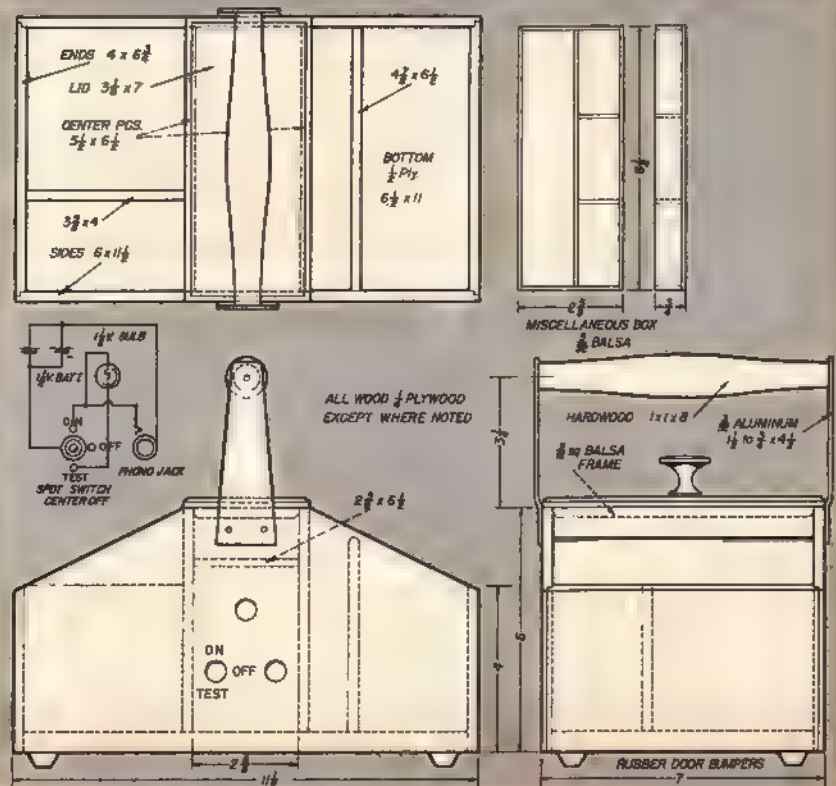
■ Shortly after World War II, the F.A.S.T. Club (First All Speed Team) of Southern California introduced a new field of competition. This competitive field was team racing. Along with the event many new ideas were born that were not only beneficial to team racing but to many other aspects of model aviation. One of these new ideas was the "Field Box."

The Field Box presented here is an accumulation of ideas by the members of the F.A.S.T. Club. It consists of five basic sections, or compartments: battery, fuel, fuel filler bulb or bulbs, props and long tools, miscellaneous equipment.

The battery section carries two square $1\frac{1}{2}$ volt dry cells. It also has a small tray over the batteries to carry extra glow plugs, nuts and bolts, needle valves, gaskets, etc. The battery section also houses the prone jack for the battery cable, a switch, and a panel light to test

glow plugs. The switch is a single pole double throw with an "Off" in the middle. One position closes a direct circuit from the battery to the phone jack and is marked "On." The other position closes the circuit from the batteries to the panel light, and then to the prone jack, and is marked "Test." The middle position is marked "Off." By using this circuit it is possible to check the element in the glow plug, by merely connecting battery cable to the glow plug and turning the switch to the position marked "Test." Should the element be burned out, the light will not glow. Therefore, if your engine does not start, by a flick of the switch you may instantly check the element in the plug. This is particularly helpful in team racing when your engine will not start in a refueling race, as it will save that precious time it takes to remove the plug to check it.

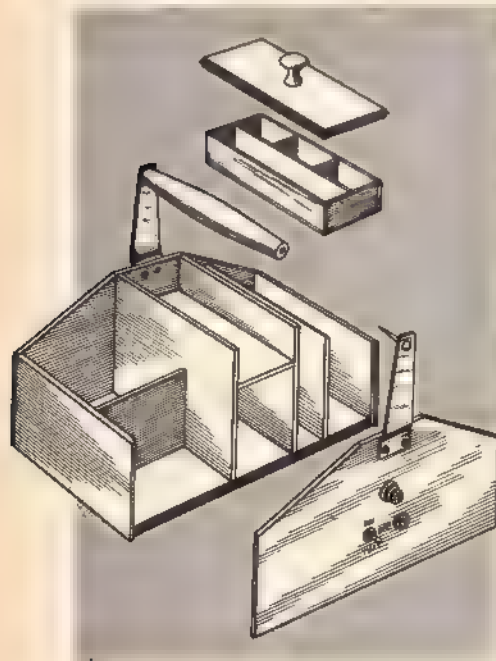
The fuel section allows room for two



pint cans of fuel. The purpose of this is also for team racing. In the short heat races a hot fuel can be used to carry you through a race. In the long refueling races where speed does not mean as much, a cold economical fuel is used to squeeze those extra laps out of your plane.

The fuel filler bulb section is large enough to carry a bulb or pump can, or whatever you are accustomed to use in filling your fuel tank. It is also a handy place to carry a rag to wipe fuel from hands and plane.

The prop section has ample room for several extra props, and like the fuel section you may carry different pitch and diameter props for the different races . . . fast accelerating high-speed props for the short heat races, and more economical props for the long refueling



races. If this section is used for long tools, balsa partitions should be provided to keep tools from marring the props.

The last section is to accommodate the many tools and objects such as plug wrench, control handle, etc., as necessary to operate your plane. It may be divided into sections or brackets may be built in to hold tools, or what have you, in place. It also serves as a place to store the battery cable when not in use. We leave the layout of this compartment to the individual builder.

The construction of the box itself is quite simple. A sheet of $\frac{1}{4}$ " plywood is used for the sides, ends, and partitions, while the bottom piece is made of $\frac{1}{8}$ "

(Continued on page 87)



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- MICH—Milan, June 12. Aeromodelers air-model meet. D. R. Maricle, 148 W. Main.
- KAN—Wichita, June 12. Wichihawks control line air-model meet. J. P. Vaille, 3981 E. Bruce.
- IOWA—Cedar Rapids, June 12. John Pavlis Memorial air-model meet. P. M. Marchal, Jr., 1837 8th Ave., S.W.
- IND—Ft. Wayne, June 12. Mad Modelers air-model meet. W. A. Krull, 414 E. Washington.
- OHIO—Cleveland, June 12. Amer. Miniature Racing Car Assoc. meet. Carl Noward, 1384 Berdan Ave., Toledo, Ohio.
- MINN—Worthington, June 12. Thunderbirds air-model meet. Guy Williams, 102 14th St.
- PENNA—Easton, June 12. Model Airplane Doctors' air-model meet. R. R. Sottosanti, 1113 Keene St.
- N.Y.—Corning, June 12. Flying Sparks R/C air-model meet. W. E. Bliss, 47 Corning Blvd.
- CONN—Hartford, June 12. Greater Hartford M.A.C. air-model team race. Richard Matava, 358 Prospect Ave.
- TEXAS—Ft. Worth, June 12. Cowtown Sahib's air-model record trials. Ralph Tenney, 2409 Spillar.
- CALIF—Inglewood, June 12. Skywolves air-model team race. D. C. Crystal, 805 E. Palmer Ave., Compton.
- GA—Atlanta, June 18-19. Greater Southeastern air-model record trials. Lloyd Wason, Decatur Hobby Shop, 315 Church St., Decatur, Ga.
- KAN—Stanley, June 18-19. KC/RC Assoc. air-model meet. Len Marshall, 9115 E. 67th St., Kansas City 29, Mo.
- ILL—Chicago, June 19. Model boat racing at East Central Lagoon, Marquette Ph., 68th & Calif. Ave.
- N.Y.—New York, June 19. Skyscrapers free flight air-model meet. W. N. Dunwoody, 130 85th St., Brooklyn 9.
- CONN—Waterbury, June 19. Modelers air-model stunt and combat meet. J. C. McKee, 713 E. Main.
- MD—Baltimore, June 19. Balto. M.P.B. Club's model power boat race for Class A-E entries at Patterson Park.
- N.J.—Millville, June 19. Garden State Aeronauts air-model meet. Andrew Canino, 116 Quince St., Vineland.
- IND—Anderson, June 19. Amer. Miniature Racing Car Assoc. meet. Carl Noward, 1384 Berdan Ave., Toledo, Ohio.
- MICH—St. Clair Shores, June 19. Emerald City Harbor air-model fair. H. A. Lewis, 21520 California.
- CALIF—Los Alamitos, June 19. Thunderbugs PAA-Load air-model meet. L. F. Swaney, 527 E. 55th St., Long Beach.
- OHIO—Strongsville, June 19. Flight-Masters air-model meet. D. R. Cowgill, 1567 Wyandotte Ave., Lakewood 7.
- ILL—Harvey, June 19. R/C Club of Chicago air-model meet. R. E. Webb, 1403 W. 79th St., Chi.
- TEXAS—Beaumont, June 25-26. Optimist's air-model championships. Don Still, 790 Liberty.
- MO—Kansas City, June 26. Flying Fools air-model meet. P. W. Asles, 5313 Reiston.
- MD—Rockville, June 26. Exchange-Bethesda Klobber Klub air-model flying Circus at Congressional Airport. H. S. Jones, RFD 1, Gaithersburg, Md.
- CONN—Wallingford, June 26. Lufbery Circleers air-model team race. C. A. Orrill, Jr., 47 Carpenter Ave., Meriden.
- PENNA—Collegeville, June 26. Cross Key Hawks air-model meet. George Moir, Main St., Mantua, N. J.
- CALIF—Fresno, June 28. F.G.M.A.C. air-model record trials. Jim Scheidt, 2225 Brown Ave.
- MINN—Mankato, June 26. Modelers-Exchange Club air-model meet. W. B. Thomas, Box 713, Lake Crystal.
- MICH—Detroit, June 28. Amer. Miniature Racing Car Assoc. meet. Carl Noward, 1384 Berdan Ave., Toledo, Ohio.
- MICH—Detroit, June 28. State Exchange air-model meet. F. P. Sposito, 9900 E. Jefferson.
- N.Y.—Elmira, July 2-14. 25th annual National Soaring Championships. P. A. Schweizer, Soaring Society of America, Box 71.
- TEXAS—Amarillo, July 2-3. Globe-News air-model meet. J. F. Pierce, 2607 W. 22nd.
- CALIF—Inglewood, July 3. Skywolves air-model record trials. D. C. Crystal, 805 E. Palmer Ave., Compton.
- OHIO—Lancaster, July 3. Exchange-Skylarks air-model meet. Paul McGrew, 431 E. Main.
- ILL—Chicago, July 3. Prop Nutz air-model meet. P. J. Sotich, 3851 W. 62nd Pl., Chi. 29.
- MASS—Pittsfield, July 10. Berkshire air-model meet. R. L. Elliott, 48 Curtis Terr.

(Continued on page 81)



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INDEX	
SS-1	ALL THUMBLE DRONE
SS-2	WEN-MAG .049
	OK CUB .049B
	OK CUB .049 DIESEL
	McCOY .049
	ALL 1/2A ENGINES
	WITH BEAM MOUNTS
SS-3	K & B .020
	OK CUB .049A & .049X
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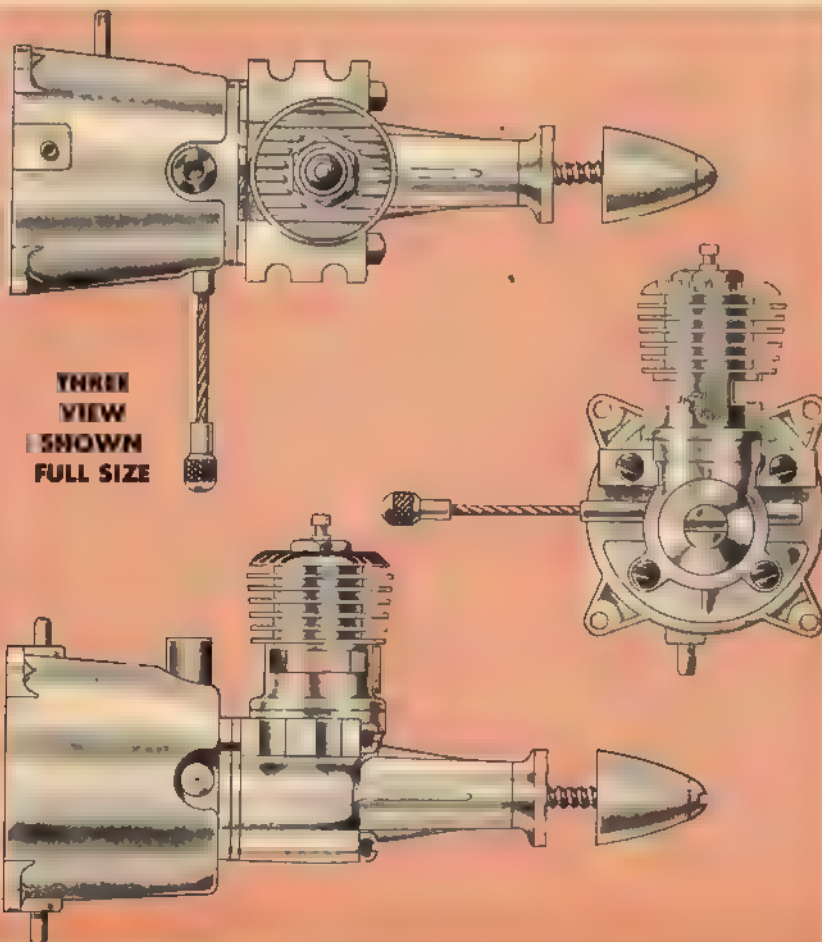
The "Midjet" is the first venture of this well-known company into the Half-A field, and we must report that they have produced a truly remarkable and potent little powerplant. The .049 Midjet is a feather-valve engine incorporating a .001 thick spring steel feather valve having four ports and located at the rear of the crankcase. It is through these ports, opened and closed by crankcase compression changes, that the fuel air mixture passes into the crankcase. Due to this design feature, fuel must be absolutely clean. The manufacturer cautions that only O&R AA fuel be used, since it fits the compression ratio and has a very necessary detergent which keeps the valve clear and also keeps the engine from gumming.

Design and construction-wise the Midjet boasts many new and novel features. The cylinder is machined in one piece. There is no separate head and therefore no head gasket. This accounts for a great deal of the power through high thermal

efficiency and even overall temperature distribution.

O&R claims an entirely new principle of cylinder chamber turbulence. With the two exhaust ports and the two transfer ports located at 45 deg. to each other and with the transfer ports terminating within the exhaust bridges, they have been able to open more of the circumference of the lower cylinder wall in exhaust ports. Also by using a conical transfer terminus the new charge of gases is directed upward into the head. Cylinders of the Midjet are not honed, but bored with a special technique and boring tool. Use of this process should help make for a long life engine since no abrasive is used.

The piston is one-piece nitrided steel with a wrist pin boss coined up in the head. This makes possible a rather large wrist pin bearing area. The wrist pin being of the hanger type, there are no holes through the walls of the piston that might allow compression to leak.



THREE
VIEW
SHOWN
FULL SIZE

This coined boss or hanger is retained in the piston by means of a snap ring.

A strong connecting rod features a bronze bushing at its lower end. The counterbalanced crankshaft is one piece of Bessemer open hearth steel with a special nitrided surface to get an especially hard long wearing surface. The shaft is internally threaded at its forward end for a separate propeller shaft. This separate shaft—coupled with the fact that no rotary valve hole need be drilled into the shaft—makes the Midjet crankshaft practically crash proof.

The needle valve is located at the rear of the engine in a separate induction case casting, just behind the feather-valve casting. The intake tube is of the vertical downdraft type. It is exceptionally large for an engine of this size but is fitted with a Neoprene extension tube which cuts down the inside diameter by more than half. For high-speed work this extension tube should be removed entirely or a thin-walled tube substituted if it becomes necessary to draw cool air in when the engine is completely cowed. Our tests proved that it is not necessary to choke the Midjet when starting.

The needle valve is machined from brass as is the needle valve body. A short piece of clear tubing is used to keep the needle from "floating."

Our test engine came fitted with a large cast aluminum fuel tank which also acts as a radial mount. It weighs about one-third as much as the engine. A clear plastic fuel line connects the tank with the needle valve body.

Your Midjet can be mounted radially with the tank, on beam mounts without the tank, or radially without the tank on heat-treated 24ST aluminum mount.

The glow plug used is of special design, having only a 3/32" thread length. This makes for efficiency because of a very shallow cavity in the plug resulting in less dead pocket in the combustion chamber. Due to this very short thread no other plug will work in the Midjet. The plug identification is O&R Kwik-Start KS-5.

Running tests were conducted with a 6/3 propeller as recommended by the manufacturer. Fuel was O&R AA.

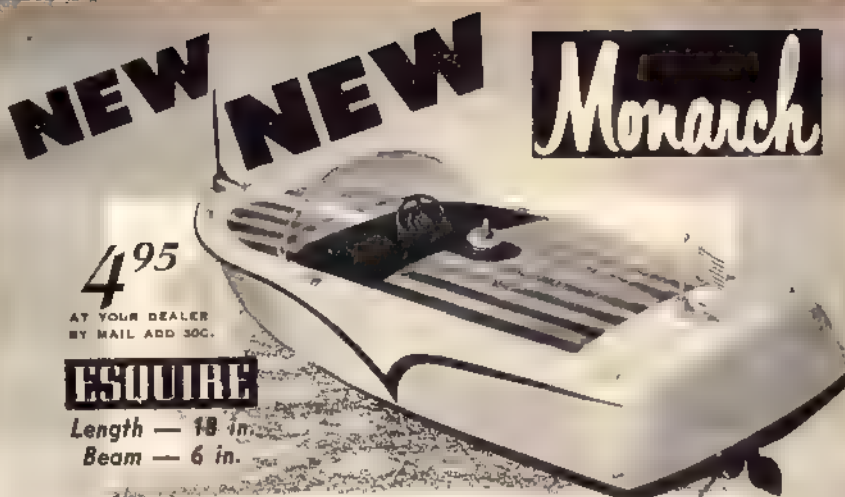
Starting was exceptionally fast by priming directly into the exhaust ports. One smart flip was usually sufficient. The Midjet runs in the normal counter clockwise rotation but this is the first engine we tested that we could flip clockwise and have it start right up counter clockwise! We also noted that if not flipped smartly, the propeller would bobble. That is the engine would be firing but the propeller would be just bouncing on and off compression without rotating.

The Midjet seems happiest when turning up around 16,000 rpm, which was the peak rpms recorded during our tests with the Neoprene tubing removed from the air intake tube. With the tubing in place about 14,000 was tops. The needle valve was much less critical, however, with the tubing.

Harry Rice states that during endurance tests conducted at the factory, the Midjet has been run up to 24,500 rpm for long periods with no ill effects whatever. Whether this was done with a fly-wheel or propeller wasn't stated.

SPECIFICATIONS

Bore .413	Weight with tank 1.88 oz.
Stroke .370	Weight less tank 1.35 oz.
Disp. .0495	Mfr's horsepower .117



4⁹⁵

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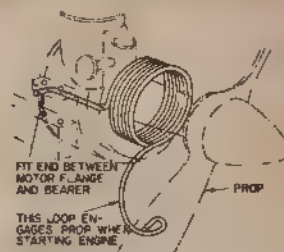
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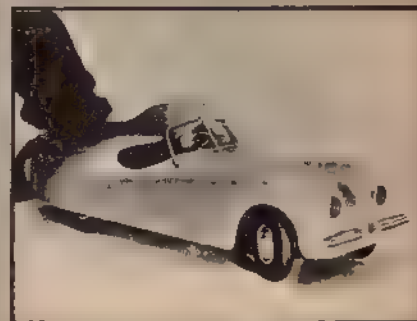
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HOBBIES

Super Self Starter is newest and latest from Hudson Miniatures (331 Adams Ave., Scranton 10, Pa.). This is one of those deals where you say to yourself: how come I didn't think of that years ago??? You permanently fasten a special pre-formed spring to your engine. It costs but 50c. Made for .049-.09 engines (specify for what powerplant). You wind prop backwards $1\frac{1}{2}$ turns, release.



Following its successful entry into the sports car hobby kit field with an MG (called "MT") automobile kit, Charles W. Doepke Mfg. Co., introduces a new Jaguar. Metal car kit is modeled to 1/10th scale from 50 individual parts, 90% of metal and all finished ready for quick assembly. Rear wheels are spring mounted, front wheels steerable. Body has baked auto enamel; 16" long. \$10.95.



Have you seen the Aero Gloss spray dope in the 98c 6-ounce can? This is a hot fuel-proof finish put out by the Pactra Chemical Co. (1213 N. Highland Ave., Los Angeles 38). The first "spray" dopes put out by Aero Gloss which are packaged in 12 ounce cans now sell for \$1.79 (with valve). A free booklet "Model Airplane Finishing" is available from hobby dealers or direct from Pactra.



Anasco offers a new 35-mm miniature camera with f/3.5 lens, 1/300 sec. shutter and coupled rangefinder. Called the Super Memar, it sells for \$69.50 including tax. Can be focused as close as 42 in. with the rangefinder and may be used for ultra close-up studies by addition of inexpensive portrait attachment. Agfa Apotar hard-coated, color corrected lens. Prontor SVS shutter.

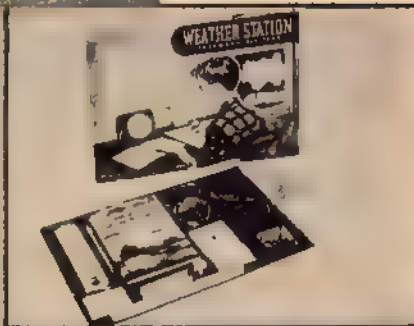


Sharp new pamphlet available at your nearest Air Force recruiting office is "The Indispensable Man—the Aircraft Technician." Gives lots of good reasons for considering a career in the USAF. Stop by and see your recruiting personnel; take one for study. Fields covered include electronics, armament and instruments, electricians and jet engine mechanics, metalworking, etc.



SHOWCASE

Airguide Weather Station (assembly kit #900) is creation of the Airguide Instrument Co. It enables you to put together a desk barometer, an outdoor thermometer and a rain gauge. Sells for \$10. Includes a colorful booklet entitled "The Ways of the Weather" plus a year's supply of charts and instruction sheets permitting you to observe, chart and forecast the weather.



Grish Brothers, prop manufacturers of St. John 1, Indiana, are out with new line of R/C props in hobby shops across the country (shipments were scheduled for early June). Tony Grish announces that there will be available a wide range of sizes and pitches. He reports that these air screws were especially designed to give utmost efficiency in radio controlled model aircraft operation.



All-new and complete is X-acto's #411 linoleum block printing kit. \$2.95 set has instruction folder, 9 fused-gray non-glare surfaced linoleum pieces (3 are pre-sketched), lino handle with 5 cutters, solid rubber roller (brayer) for spreading ink, printing ink, acetate ink spreader, wooden roller for making impressions and packet of colored printing paper. Splendid way to start.



With the model world on a plastic "kick," big item in the field is Testors quick-drying polystyrene plastic cement now available in 10c tubes. Companion item to TPC is Testors "Pla" decorative enamels in various colors. These are packaged in 49c assortment which includes thinner. Pla can be used for figurines, china, glass, wood and metal. Testor also makes "39" engine fuel.



Model SE selective escapement by Citizen-Ship Radio Corp. (909 Westfield Blvd., Indianapolis 20) is replacement for present C-3 "PSN." Uses same battery power as PSN, same space and mounting holes, same 1/4" flat rubber. The SE permits you to select right or left rudder at will; it is well adapted to new "rudder only" AMA rules. Weight is less than 1 oz. Priced at \$7.95.



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Model Builder

"I have several hobbies and enjoy them all," admits David Johnson, 14, Columbus, Ga. "I build model planes, paint with oils, photograph, and do target shooting with a .22 rifle, but my favorite hobby, and the one that takes up most of my time is playing a guitar and singing. I started out on my musical career when I was nine years old by entering several talent contests on local radio stations and won first prizes every time except once. When 12 years old, I had my own radio program over station WDAK.

"To date I have sung and played on about seven different radio and three TV stations. At present I appear regularly over WDAK-TV and WDAK (radio). Have played in stage shows here with several famous folk singers such as Hank Williams, Hank Thompson and Lefty Frizzell. The local newspapers gave



me a couple of feature write-ups and a magazine "Cowboy Songs" did a story about me.

"I find music an excellent hobby for boys, as through it, one meets lots of interesting people, the Union card gets one in into a number of places for free. Music also leads to interest in other things, like records, and radio equipment. Look what Les Paul did with sound equipment. The guitar is not hard to learn if one has a small amount of natural talent. Once you learn a few chords, the rest can be easily picked up. Same goes for singing. I cannot read sheet music and do not know many rules. I just listen to records and learn 'em."

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"SAND COLLECTING" says Jim Tucker

"I have a hobby that I would like to share," writes Jimmy Tucker of Nashville, Tenn. "I collect sand. The photo above shows my collection on a board in glass tubes. I became interested in sand at the age of 12 when a lady collector, here in town, gave me several samples. This got me

started. I am 16 years old now and have 365 different kinds of sand. I grade my collection according to place and color. In these glass tubes there are sands from five of the seven continents and such interesting places as the 38th Parallel in Korea. It's fun and has helped my geography."

Now . . . What's your hobby? Is it of special interest to mechanically minded young fellows? If so, tell us about it! Send photographs, details on how you got started, to "What's

Your Hobby," Air Trails HOBBIES, 304 E. 45th St., New York 17, N. Y. We pay you \$25 for first photo, \$5 for extra photos so used. Write legibly or typewrite your comments.

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★ TESTIMONIAL OF THE MONTH ★**

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Bug Jr. eng. and
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Just paint.
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(Continued from page 74)

- OHIO—Cleveland, July 10 & 17. Junior Air Races—
17th annual air-model meet. C. L. Tracy, The
Cleveland Press.
- ILL—Chicago, July 10. CMPBA inter-club model
boat race. E. Central Lagoon, Marquette Pk. J. R.
Matthews, 10451 S. Parnell Ave., Chi. 28.
- OHIO—Columbus, July 10. AMRCA model car meet.
Clarence Miller, 1207 Lilley Ave.
- S.C.—Orangeburg, July 10. Palmetto regional cham-
pionships air-model meet. Larry Bly, Box 744.
- IND—Evansville, July 10. Control line air model
meet. Jerry Knowles, 1111 W. Delaware.
- TEXAS—Ft. Worth, July 10. Cowtown Sahibs air-
model record trials. Ralph Tenny, 2409 Spiller.
- CALIF—Inglewood, July 10. Skywolves air-model
team racing. D. C. Crystal, 805 E. Palmer Ave.,
Compton.
- N.Y.—Long Island, July 10. Gas Monkey's air-model
meet. E. W. Howe, 5 Camdike, Valley Stream, N.Y.
- OHIO—Greenville, July 17. Jaycees air-model meet.
Fritz Dittmer, Box 195.
- WISC—Kohler, July 17. Sheboygan Modelers air-
model meet. W. A. Lea, 1030 N. 14th St., She-
boygan.
- CONN—Hartford, July 17. Greater Hartford MAC
team racing air-model meet. G. J. Gallagher, 47
Church St., E. Hartford.
- CALIF—Long Beach, July 18-24. National Champion-
ship Model Airplane Contest at Los Alamitos Na-
val Air Station. Academy of Model Aeronautics,
1025 Connecticut Ave., N.W., Washington 6, D.C.
- OHIO—Akron, July 23. AMRCA night model car
race. Guy Richards, 3353 Magadore R., Magadore.
- ILL—Chicago, July 24. CMPBA model boat race at
Marquette Pk. J. R. Matthews, 10451 S. Parnell
Ave., Chi. 28.
- IND—Newcastle, July 24. AMRCA model car race.
Russell Harter, 805 S. 20th St.
- MASS—Norwood, July 24. NSME air-model meet. A.
L. Trefethen, 184 Oakdale Ave., Dedham.
- WISC—Milwaukee, July 24. Flying Electrons R/C
air-model meet. V. R. Weissbrodt, 2100 E. Web-
ster Pl.
- ILL—Harvey, July 24. R/C Club of Chi's air-model
meet. R. E. Webb, 1303 W. 79th St., Chi. 20.
- PA—Bristol, July 30-31. Aeromodelers Eastern States
hydro championships. A. E. Abrams, Jr., 1031
Pond.
- CALIF—Fresno, July 31. FGMA air-model record
trials. Jim Scheldt, 2225 Brown Ave.
- S.C.—Spartanburg, July 31. A.B.C.-Sky-Knights air-
model meet. C. H. Hutchins, Box 403.

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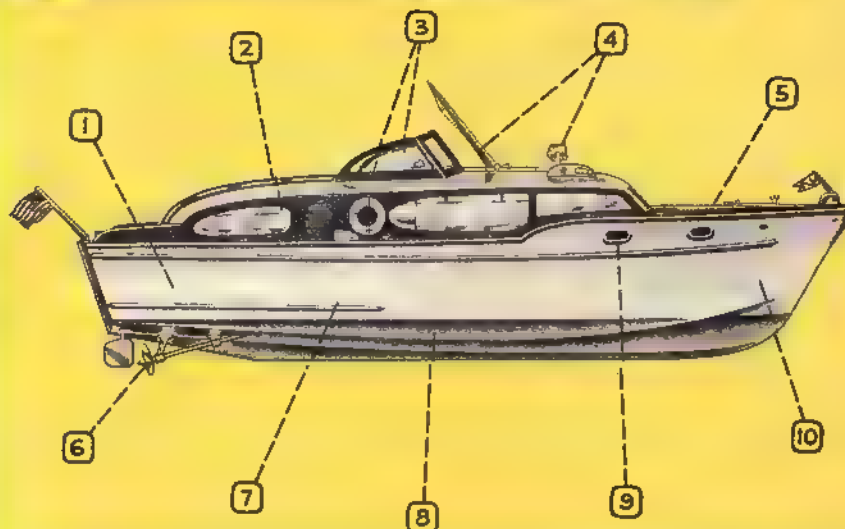
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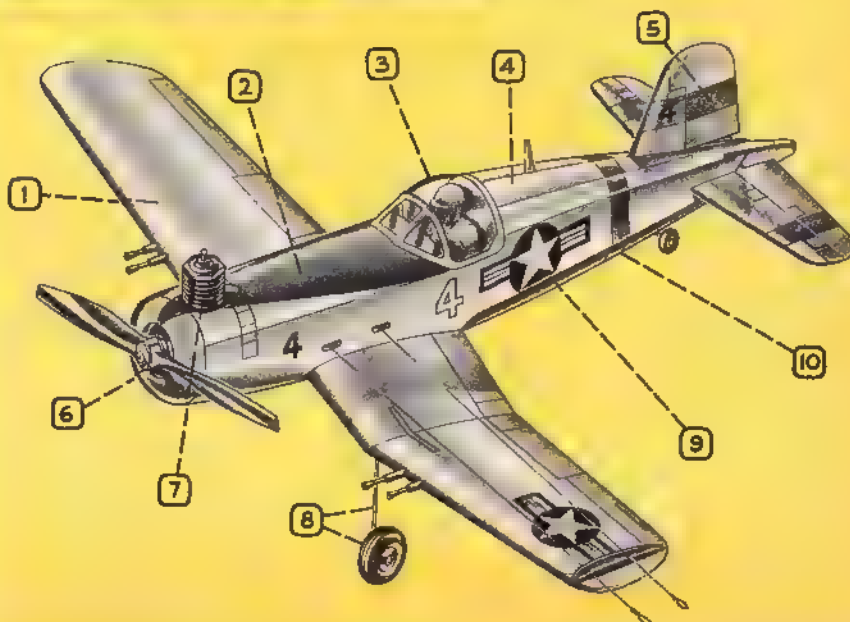
■ As produced by Sterling Models, Philadelphia, this is probably the biggest prefabricated model boat kit in the world.

Main features of the boat kit are 1) finished mahogany decks, 2) die-cut mahogany cabin sides, celluloid window stock, 3) shaped balsa roof molding, die-cut veneer windshield, 4) complete scale cast metal hardware included, 5) grooved, die-cut mahogany veneer foredeck, 6) scale cast metal twin-screw hardware set; Nylon propellers, misc. parts for powering also supplied, 7) installation data for twin-screw electric or gasoline engine powerplants, 8) all formers, keels, etc. die-cut, numbered for easy assembly, 9) miscellaneous fittings, flags, etc. supplied, 10) bow planking materials.

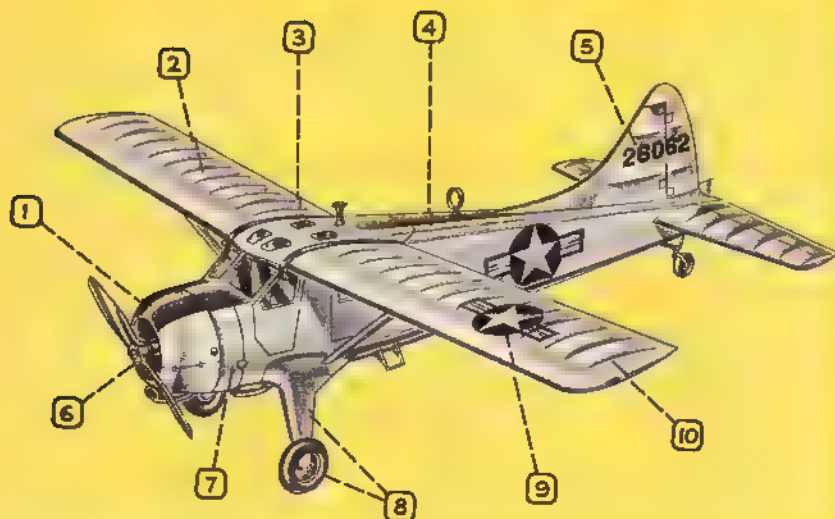
■ Enterprise is the latest concern to bring to model builders the famous Vought, a well-proven scale control line design. This is a 17½" wingspan Half-A engine powered copy of the Navy fighter. All finished balsa parts and plastic accessories.

Among the points of interest we find 1) ready-shaped balsa wing, scored for dihedral, 2) shaped balsa top and bottom fuselage sections, 3) plastic pilot, clear plastic canopy, 4) Silkspar-covered rear sections, 5) die-cut balsa tail group, 6) formed plastic cowling, 7) .035-.075 cu. in. disp. engines recommended, 8) formed steel wire gear legs, rubber wheels, 9) authentic scale color decals, 10) balsa fuselage sides, formers die-cut.

"CORSAIR" F4U-5



BERKELEY "BEAVER"



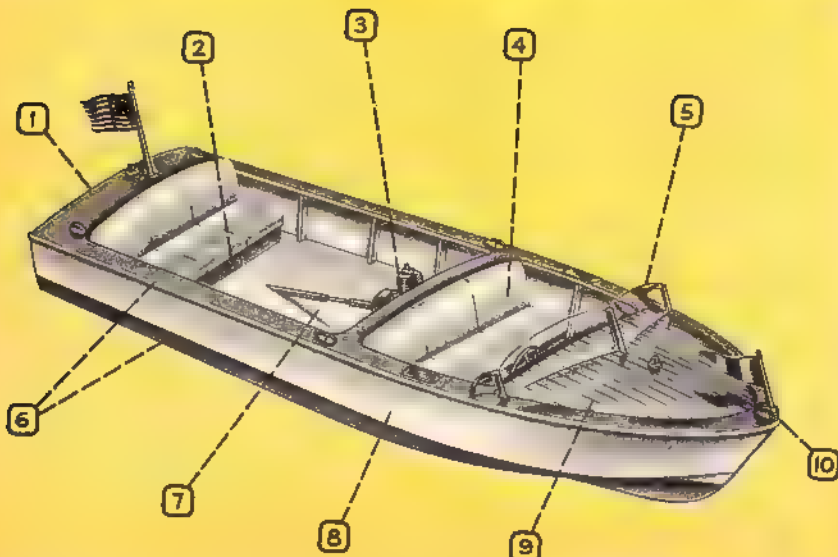
■ Actually this isn't Berkeley's own "Beaver," it's a small-size copy of the de Havilland "Beaver"—but Berkeley's free flight or control line (take your choice) flying scale copy is quite authentic.

Here's what to look for when you examine the kit: 1) formed metal cowl included, 2) Silkspar covering material, 3) removable one-piece wing, 4) die-cut formers; stringers, etc., cut to dimension, 5) all ribs die-cut; spars, edges cut to dimension, 6) engine range: .049 (free flight) to .15 (control-line), 7) all fuselage blocks cut to approximate shape, 8) rubber wheels, formed dural gear legs, 9) complete color decal insignia, 10) die-cut balsa ribs, shaped edges. Plans show free flight, R/C or U-control.

■ This attractive boat by Ideal Models has a completely assembled "Welded Wood" balsa hull. With beam of $7\frac{1}{2}$ inches, hull is 20 inches long. Can be R/C'd using inboard electric or gas motor.

Outstanding features include the following: 1) propeller, shafting, stuffing box, etc. included, 2) adjustable tiller, 3) data for powering with Half-A gasoline or electric inboard motor, 4) upholstery material die-cut for seats, motor box, etc., 5) die-cut windshield, cast metal supports, 6) pre-formed chine, gunwale and coaming parts, 7) die-cut plywood keel, ribs, etc., 8) completely assembled "welded wood" balsa hull, 9) mahogany veneer foredeck (striped) and flooring, 10) complete set of scale cast metal fittings.

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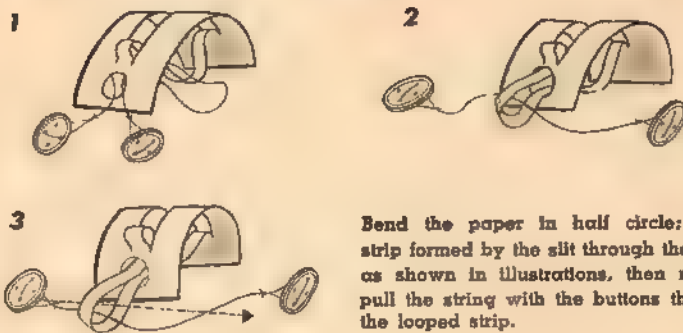
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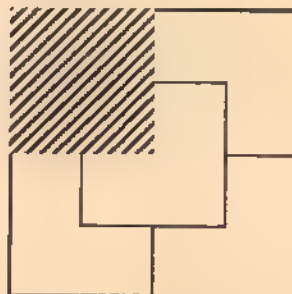
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SOLUTIONS



Bend the paper in half circle; push strip formed by the slit through the hole, as shown in illustrations, then merely pull the string with the buttons through the looped strip.



First, the father divided the garden into three rectangular squares by projecting lines from the side of the house. Each of these squares was then divided into quarters (all of same shape and area) making a total of twelve. Each child was given three of the squares in the form of letter "L", as shown on the illustration. Cross-hatched portion indicates house.

F.S.M. Adapter

(Continued from page 52)

unit, where it could do damage. Hold the pliers on the lead until you can touch the soldered joint with your finger. The same technique should be used when soldering in the diode, which can also be ruined by excessive heat.

A banana jack was used for the antenna, since some whips with banana plugs were on hand. A pin jacket might be more useful for most builders, as you can plug a length of music wire directly into it. We normally use a 2 ft. antenna; a longer one will give better pickup, but is awkward to handle.

You can calibrate the dial of the FSM roughly, but it can't be considered to be a frequency meter, since the tuning will vary according to how you hold the case, or where it is set down. If something is wrong in your transmitter that shifts the frequency, though, you will probably be able to spot it at once. We suggest that you try always to set the FSM the same distance from the transmitter antenna; some users of such meters make it a practice to put the FSM on the hood of their car, so that it will always have about the same amount of pickup no matter what the transmitter is putting out. Placing it on a metal surface of this sort makes the FSM effectively much more sensitive than if it were sitting on average ground. If you normally place your transmitter on the hood of the car, put the FSM on the top and cut the antenna length down till you get a midscale reading.

Treat your adapter with respect; you have a sensitive unit that can be damaged by mishandling. For example, don't

leave it sitting near the transmitter with the antenna in place, but with no meter; it might be picking up a heavy enough signal to ruin both the diode and the transistor, yet you would never realize it, since there would be no telltale off-scale meter reading. Approach a high-power transmitter such as the Mac II with caution; you will doubtless not require anywhere near 2 ft. of antenna to get a good deflection from such an outfit. Of course, FSM readings are more accurate the farther you get away from the transmitter, but it is poor policy to put your meter 30 or 30 ft. away in the grass, if only for the reason that someone will probably step on it. Readings of the FSM are relative anyway, and no matter where you put it, you can get an immediate danger indication if the reading drops off suddenly when you are transmitting.

One last word. We recommend hooking up the meter pack as shown; if you turn it around, the jack will have to be insulated from the case, and damage could be done if the "hot" jack nut were shorted to the antenna. If your test meter reads OK in the FSM, but backwards in your model, we suggest you just reverse the leads to the plane jack.

Parts Requirements: LI—see dwg. C1—25 mmf. midget variable (we used an APC type with a 3/4" diameter tube soldered to the stub shaft). C2—.001 mf. CRL DD102. D—Raytheon CK705. TR—Radio Receptor type RR115. R—330 ohms, 1/2 W. carbon. Batt.—two Mallory RM-625RT (or two half pen-cells). Single circuit jack. Case—Bud CU-2100, 2 3/4 x 2 1/2 x 1 1/2" overall. One socket—Cinch 2H5 with mounting ring. Knob. Banana or pin jack.

—HOWARD G. McENTEE

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Hobby Model World

(Continued from page 43)

Valencia, Spain, an international model airplane meet was held between the U.S.S. Coral Sea (CVA-43) "Knuckle-busters" and the Agrupacion Levantina Aeromodelismo (ALA) of Valencia. Held at the local airport, the meet was a large affair involving some 40 contestants, numerous spectators and a formidable array of model planes.

The major part of the flying was control line craft. The Americans were particularly skilled in stunt flying, while their Spanish counterparts excelled in team racing. Navy officials reported that though less powerful than the American engines, the quick-starting Spanish diesels were well adapted to racing work.

—THE DOPESTER

WESTERN ROUND UP

Hooray for Vessels. Nothing but contests out west these days; most week ends have at least two contests—you can even take a choice! First up was the contest sponsored by three Los Angeles clubs honoring Frank Vessels, who per usual came up with another "save" for the model builders. Seems like Mr. Vessels's racing secretary complained about the model planes drifting over and scaring some of the quarter horses which were in training at the track in preparation to the racing season. Mr. Vessels told him that the models were here before the horses! Just how far can a guy go?

Flying conditions were as good as one could want at this contest—proof is two

new records. Martin Wolff, who is now flying in the senior class, smashed the Class A Sr. record to total 30:59 with his Spacer-Torp .19 combination. Jack Moreland beat Martin's Jr. C. record when he totaled 22 plus with the Spacer-Torp .32 combination. Two contenders for the "3-sixes 4th-flub" club bid for top honors and made it. Ray Van De Walker, who had previously made the list with a flight of under a minute, this time had an over-run for "zero" time. Charley White, a newcomer to the club, made it with an over-run for zero time. Martin Wolff was sweepstakes winner at this contest, beating out all the experts.

Indoor Activity. Next contest was an indoor record trial which proved to be well stocked with arms. There were more than a hundred flights of over a minute in hand-launched glider, probably more flights than have ever been made in a single day before. Record holders past and present in the shape of Joe Foster and Bob Dagand. For the first three hours the air was thick with gliders, Joe Foster posting an early 1:10 time for what seemed a winning effort, and it stood up till the contest was over (the winning flight of 1:11 landed seconds after flying stopped). Most amazed of all was undoubtedly the winner, Dick Everett, for it was the first time that he had ever topped a minute. Joe was second at 1:10, Carl Rambo 3rd with 1:08.8, Bob Dagand 4th with 1:08.4 and a senior, Chris Meiner, came within a fraction of a second of the record with 1:05.3 and 5th. This summer's Nats promises to be very interesting for these gliders.

In the rubber-powered flying Joe Fos-

ter made an attempt at the B cabin record but missed out by 25 seconds with 18:22 when he ran out of winds about 58 ft. up. Joe Bilgri then loaned him a dead loop of 5/64 but this had him bouncing at 3 minutes till he finally hung up. Joe Foster found out that his paper job with an all-wood prop would not do near as well as with the paper-covered prop—in fact would do only 12:18, which is in itself a good start but the time will probably get up around 18-20 minutes in a year if many guys build these ships.

The Cloud Dusters of Oakland are finding that their indoor glider balloon-busting contests are using up a lot of balloons. Charles Pottol came through for his second win, bursting 37 this time; Glen Speckler smashed 19 for second place. Joe Bilgri seems to think that they should handicap Charley for allowing him to use as many pins as he likes.

The Big Crunch. Bakersfield and their Annual meet really acted as a clearing house for model airplanes. We have never seen a contest where so many per capita airplanes disintegrated into so many pieces. When the ships hit some of them buried spinners into the ground. Pieces were so plentiful that it is doubtful you could have swept them up with a broom. In a lot of cases this was caused by pilot error, some guys attempting cross-wind take-offs, and VTO guys trying into-the-wind take-offs, which is something you just don't get away with all the time since the wind has a tendency to blow the ship up and over before it gains good flying speed. All in all there were a lot of ships smashed

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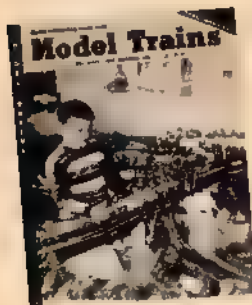
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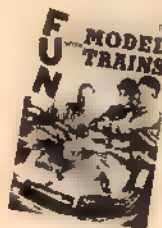
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up—as well as a few long faces.

The times were high and good in most events. We timed for a while and had nine out of the first ten flights go for the maximum six. In A/2 Norman Peterson was first with 14:05, Louie Culler was 1st in A with 17:41, Kelley Thomas 1st in B with 3 sixes, and in C Phil Kraft duplicated Kelley's 3 sixes. Open sweepstakes was won by John Wertz Jr., while Jr. was won by Al Vorel. Quite a rhubarb came up during the Jr. sweepstakes presentation.

Calif. State Meet. Mom and Pop Robbers have completed their organization of the coming State Championship Meet more than two months prior to the event. They have managed to get the cooperation of the experts, each a specialist in his particular field to run these many events, and some events even have technical advisors.

When one goes to this contest at Moffett Field, he will find, besides Mom and Pop, technical advisors Lloyd Boggs, Arnold Nelson, Jack Fahoney, Bill Hitenberger and Joe Bilgri. As event directors there are Bill Rocce, Bob Wakerley, Chet Haworth, Ray Randall, Andy Amate, Howard Yonkers, Tom Moore, Gordon Peterson, Harvey Milts, Carl Rambo and Jim McFadden. This is truly a fine organization and one which we are sure looking forward to seeing in action.

—DICK EVERETT

SOUTHERN SCENE

Hobby Fair. Rich's, one of Atlanta's leading department stores, conducted the largest Hobby Fair ever held in the Southeast. Jay Salzman and Ernest Hiscok of Rich's with the able assistance of Jim Weaver of Leitzsey Model Distributors planned and carried out the spectacular event.

The purpose of the Fair was to present and demonstrate hobbies of all types, in an effort to show the public the importance of and enjoyment one receives from such a pastime.

The show spotlighted many indoor and outdoor hobbies. The entire Plaza floor was taken over for the event. In the center of the Plaza floor, a 13-foot arena was sectioned off for flying models and other demonstrations. In addition to the models that were flown, model cars from .049 to .19 were run on this indoor track at speeds up to 60 mph. Also adjoining the arena was a large wading pool set up for the latest in powered boats, gas and battery. Yours Truly endeavored to entertain the crowd with Jim Walker's new "Firebee" (stop and go landings) and the Old Master's "Sabre Dance."

In addition to the demonstrations and exhibitions movies were shown several times during the week-long fair, on building and flying model airplanes.

The event was important to the hobby trade because it was through the help of 25 major hobby manufacturers that it took place. Among the major contributors of exhibits and displays were X-Acto, Berkeley, Revell, Sterling, Hawk, Athern, Wilson, Varney, Wen Mac, Pyro, Tolecraft, Burgess, Strombeck-Becker, McCoy and Helicopter Models. Many others also contributed.

Another high point of the show was the participation of Bill Eccles of Berkeley Models who gave informal talks and kept the show lively.

—ROBERT W. "BOB" ELLIOTT



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Field Box

(Continued from page 73)

plywood 6 1/4" x 11".

Before the hardware and wiring are installed, the box should be finished. This may be done with varnish to show off the grain of the wood, or painted with a synthetic enamel of your favorite color. Most of the F.A.S.T. Club members have painted their field boxes with the same color as their planes. On the side of the box, opposite the switch, jack, and light, they have placed their flying number or AMA number, their name, and club name. No matter how you decide to finish the box, make sure you

have a fuel-proof finish on it.

Now that you have a Field Box, keep it well stocked with the necessary supplies. It will make model flying more enjoyable because there will be no more running back and forth between your plane and the car to replace a broken prop or burned out glow plug. It will no longer be necessary to carry a large heavy tool box with a complete machine shop in it to the flying area. Your Field Box is an assurance of more flights in events such as stunt or speed where a two-minute time limit is placed on starting. In free flight it is easier to carry one plane and one Field Box to the launching area than it is to carry your plane plus a set of batteries (with leads dangling) and a can of fuel. No matter what type of plane you fly, whether glow plug engine type, ignition, or even diesel, your Field Box can make model flying more enjoyable. In team racing (the event that made the Field Box a necessity) where ten seconds can put your plane three to four laps behind, your Field Box can win you more races.

—ANTHONY F. PALETHORPE, JR

The Readers Write

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(Continued on page 89)

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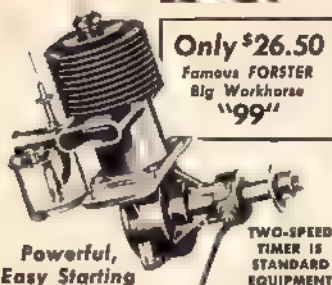
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Hobby Club Emblems



The Flying Vampires consist of students of the Bancroft Junior High School of San Leandro, Cal. Club members build and fly all types of models, U-control, free-flight gliders, and jets, are now getting set to start working on R/C. The insignia was designed by 15-year-old member Kenny Kusnik. Club is advised by Glen M. Stickler and E. M. Geritfi, Metal Shop Instructor.

MANKATO



MODELEERS

Named after Mankato, Minn. the club has 21 active members and four in the armed forces. Meets twice a month at the administration building of Mankato airport. Organization is very closely knit, which accounts for its success. Insignia depicting a speed model with two "M's" superimposed is similar to one on members' T-shirts and coveralls. President is Jim Anderson. All members are licensed by the A.M.A.



Club received its A.M.A. charter in 1947. Present membership is 25, many of whom were in the Air Force during the war. Quite a few present and former members hold records in different classes, and held championships at one time or other. The "Bugs" team won the National Model Aero Club Championship in 1951. The organization is almost exclusively made up of free-flight builders. President is Walter Hartung.

Send your club insignia—with info on your group. ATN will pay \$10 for each emblem and report used here. Type data and send only printed emblems or decals—no sketches.

Air Trails HOBBIES For Young Men

JULY, 1955

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POWERED BOATING—International Model Power Boat Association. Mrs. Margaret Baxmann, 2991 Garland Avenue, Detroit 14, Michigan. Send 10c for membership data.

AEROMODELING—In U.S. official governing body is the Academy of Model Aeronautics, 1025 Conn. Ave. N.W., Washington 6, D.C. Send 10c for information on joining.

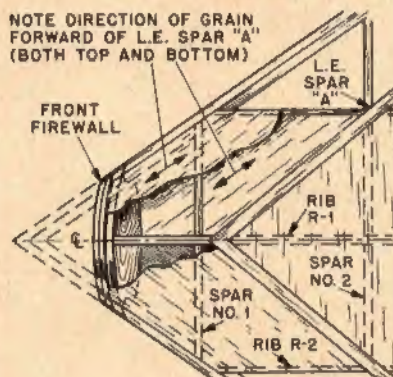
MODEL RAILROADING—National Model Railroad Association, c/o Robert Bast, Box 1138, Canton, Ohio. Include 10c with request for membership details.

CANADIAN—AIR—MODELING—Model Aeronautics Association of Canada, 2109 Bleury Street, Montreal, Que. Send 10c for details.

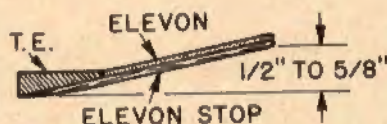
(Continued from page 87)

Skydelta Model Corrections . . . In the May 1955 issue I noted several errors on the "Skydelta" which I feel you may wish to correct. They are:

1) The grain of the 1/16" sheet covering between ribs #1 and #2 near the nose on the plans is not correct. I fear the strength will be inadequate. It should be as shown below. The incorrect way is also more difficult to apply when building.

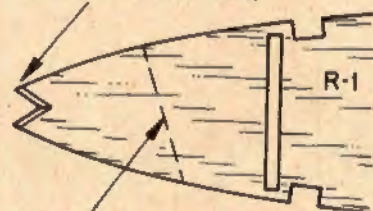


2) The amount of elevon stop is tilted upward would best be defined by a dimension on the plans. This is significant since on this plane it is the equivalent of the minimum incidence. The top view of the right wing tip has a cross section side view sketch.



3) Rib "R-1" should be extended to the nose to point up the fact that initially the rib is full length and later it is trimmed off as explained in the article. It would be better to make this clear instead of requiring the builder to think about it.

RIB R-1 IS CUT FULL LENGTH TO L.E.



LATER TRIMMED AS PER THIS DOTTED LINE FOR MOUNTING FIREWALL

4) The "plans" advertisement has the span and length reversed. The span is 36".

5) The second paragraph on page 24 states "the movable rudder is under the wing to insure effectiveness at extremely high angles of attack when the wing tends to blanket out part of the upper rudder. However, anyone who likes the movable rudder on top will find that it will work to his satisfaction. The difference in effectiveness is rather small.

I would like to mention that I feel a fine job was done on all aspects of the article.

Donald C. Broggini, Mineola, N.Y.

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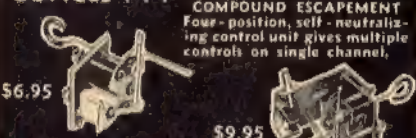


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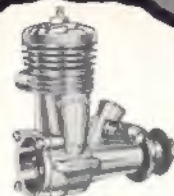
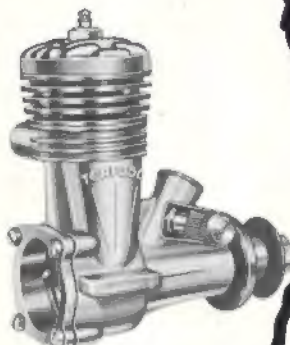
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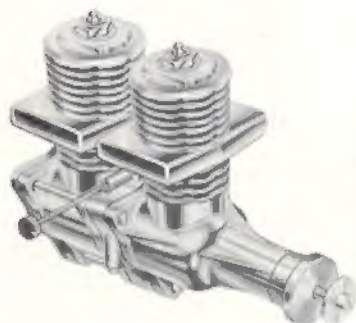
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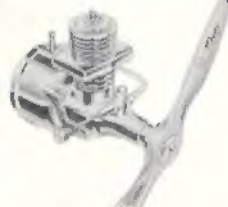
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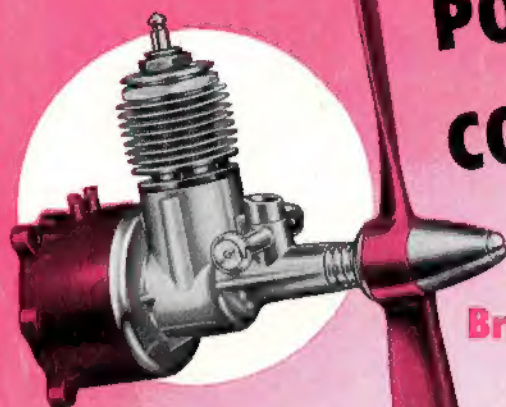
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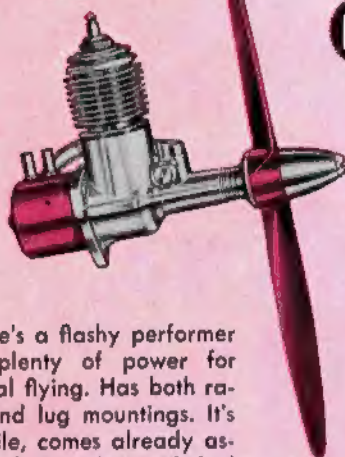
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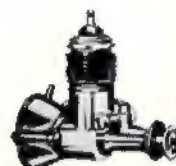
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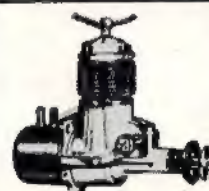
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